DOCUMENT RESUME

ED 325 598 UD 027 749

AUTHOR	Cave, George; Quint, Janet
TITLE	Career Beginnings Impact Evaluation: Findings from a Program for Disadvantaged High School Students.
INSTITUTION	Manpower Demonstration Research Corp., New York, N.Y.
SPONS AGENCY	Commonwealth Fund, New York, N.Y.; John D. and Catherine T. MacArthur Foundation, Chicago, IL.
PUB DATE	Oct 90
NOTE	185p.
AVAILABLE FROM	Manpower Demonstration Research Corporation, 3 Park Avenue, New York, NY 10016.
PUB TYPE	Reports - Evaluative/Feasibility (142) -- Statistical Data (110)
EDRS PRICE	MF01/PC08 Plus Postage.
DESCRIPTORS	*Academic Aspiration; *Career Development; *College Preparation; Cooperative Programs; *Economically Disadvantaged; Followup Studies; Higher Education; High Schools; *High School Students; Low Income Groups; *Urban Programs
IDENTIFIERS	*Collaboratives

ABSTRACT

This evaluation of the services and short-term impact of the 1987/88 Career Beginnings (CB) program found an increase in the average rate of college attendance of participants in the year following high school graduation. Career Beginnings targets urban high school juniors from low-income families who demonstrate average academic performance and helps them enter college and upgrade their educational choices. The program served students at 24 sites and included the following common features: (1) collaboration between a college, the public schools, and the business community; (2) employment between the junior and senior years; (3) summer workshops and classes; (4) counseling; and (5) mentoring. In all, 1,574 students who qualified for services were randomly assigned in equal numbers either to the experimental group (which was encouraged to take part in CB activities) or to the control group (which was excluded from CB). Evaluation was based on the responses of 1,233 participants and controls to two follow-up interviews conducted 1 and 2 years later. The following findings are reported: (1) during their senior year, controls received considerably more services similar to those received by participants than had been anticipated; (2) participants received more services than controls at most sites; (3) participants reported liking the program; (4) across the sites, 48.5 percent of the controls attended college; (5) more participants than controls (53.2 percent) attended college and reported raised educational aspirations; (6) differences in the college enrollment rates of participants and controls persisted throughout the post-high school year; (7) sites varied greatly in their impact; and (8) participants worked less and earned less than controls during the follow-up year. Statistical data are presented in 44 tables and six graphs. A list of 10 references and a list of 21 publications on youth projects are appended. (FMW)

ED325598

Career Beginnings Impact Evaluation:

Findings from a Program for Disadvantaged High School Students

George Cave
Janet Quint

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☑ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

- Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

October 1990

Manpower Demonstration Research Corporation

UD 027 704

MDRC

BOARD OF DIRECTORS

RICHARD P. NATHAN, *Chairman*
Provost, Rockefeller College
State University of New York
Director, Rockefeller Institute of Government

BERNARD E. ANDERSON, *Vice Chairman*
Managing Partner
Urban Affairs Partnership Corporation

PAUL H. O'NEILL, *Treasurer*
Chairman and CEO
Alcoa

ELI GINZBERG, *Chairman Emeritus*
Director
Conservation of Human Resources
Columbia University

MARY JO BANE
Professor of Public Policy
John F. Kennedy School of Government
Harvard University

RAMON C. CORTINES
Superintendent
San Francisco Unified School District

ALAN KISTLER
President
Human Resources Development Institute
AFL-CIO

ELEANOR HOLMES NORTON
Professor
Georgetown University Law Center

RUDOLPH G. PENNER
Senior Fellow
The Urban Institute

ISABEL V. SAWHILL
Co-Director
Changing Domestic Priorities Project
The Urban Institute

ROBERT SOLOW
Institute Professor
Massachusetts Institute of Technology

GILBERT STEINER
Senior Fellow
Brookings Institution

MITCHELL SVIRIDOFF
Senior Fellow
Community Development Research Center
New School for Social Research

WILLIAM S. WOODSIDE
Chairman, Sky Chefs, Inc.
Former Chairman and CEO, Primerica Corporation

JUDITH M. GUERON
President
Manpower Demonstration Research Corporation

MDRC

CAREER BEGINNINGS IMPACT EVALUATION: FINDINGS FROM A PROGRAM FOR DISADVANTAGED HIGH SCHOOL STUDENTS

George Cave
Janet Quint

Manpower Demonstration
Research Corporation

October 1990

The Manpower Demonstration Research Corporation's impact evaluation of the Career Beginnings program has been funded by grants from The Commonwealth Fund and the John D. and Catherine T. MacArthur Foundation.

Dissemination of MDRC reports is also supported by our Public Policy Outreach Funders:

The Ford Foundation
The Ambrose Monell Foundation
The Florence and John Schumann Foundation
Alcoa Foundation
Exxon Corporation
Philip Morris Companies
Ætna Foundation
Metropolitan Life Foundation
Anheuser-Busch Companies
The Bristol-Myers Squibb Foundation
The Coca-Cola Company
The New York Times Company Foundation
BellSouth Corporation

The findings and conclusions in this report do not necessarily represent the official positions or policies of the funders.

Library of Congress Cataloging-in-Publication Data

Cave, George.
Career beginnings impact evaluation: findings from a program for disadvantaged high school students / George Cave, Janet Quint.
p. cm.
"October 1990."
Includes bibliographical references (p.).
1. Socially handicapped youth–Education (Higher)–United States. 2. Career education–United States. 3. Socially handicapped youth–Employment–United States. I. Quint, Janet. II. Manpower Demonstration Research Corporation. III. Title.
LC4091.C38 1990
371.96'7'0973–dc20 90-13469
CIP

Copyright © 1990 by the Manpower Demonstration Research Corporation

ACKNOWLEDGMENTS

The impact evaluation of the Career Beginnings program, and the development of this report, benefited from the contributions of many people and organizations during the past several years.

At The Commonwealth Fund, Thomas W. Moloney, Senior Vice President, has played an especially valued role in initiating the study and guiding its progress. His interest in probing for the broad policy implications of the study and his insights in reviewing the unfolding findings have been particularly important in shaping this report. Cynthia H. Woodcock, formerly Assistant Vice President for Program Finance and Management, served as grant officer for this study and provided us with valuable advice and support until her recent departure from The Commonwealth Fund. Fran Fogelman, program assistant, has helped coordinate recent project activities.

Peter Gerber, Director of Education Programs at the John D. and Catherine T. MacArthur Foundation, has been a thoughtful commentator on the Career Beginnings impact study. Paul Cleary of the Harvard Medical School also provided useful advice.

Several individuals from the Career Beginnings National Program Office at the Center for Human Resources, Brandeis University, have been instrumental in helping us implement the study and in providing us with program data. Erik Butler, Director of the Center, Andrew Hahn, Associate Dean of the Heller School, and William Bloomfield, Associate Director of the Center, have worked with us throughout the project to facilitate the study's execution and to provide the background and commentary on local program implementation and operation that have been critical to understanding and interpreting the impact data. Their responsiveness in reviewing working papers and draft documents is also much appreciated. Their site profiles and summaries were an important source of information for this report. The site and cross-site reports prepared by Larry Bailis, in his role as consultant to the National Program Office, were also of critical importance in capturing the site-specific nuances of each local Career Beginnings program as well as the common threads.

Andrew Sum, Director of the Center for Labor Market Studies at Northeastern University, conducted supplementary analyses of the college-going patterns of recent high school graduates, based on the Current Population Survey and Bureau of Labor Statistics data. His work was invaluable in helping us understand the behavior of research sample members in a wider context.

The study would not have been possible without the cooperation of the staff of the participating sites. They graciously accommodated the special requirements of the research design while proceeding with the responsibilities of administering their programs, and they also provided assistance in locating youths for interviews. The youths themselves are the primary source of the data upon which this evaluation depends, and we are indebted to them for their cooperation with the interview process, as well as to Geraldine Mooney, formerly at Response Analysis Corporation, and to Linda Russell and the staff at Response Analysis Corporation for formulating and conducting the survey effort.

At MDRC, this work has benefited from the advice of many of our colleagues. In particular, Karen Paget has directed the project and reviewed the plans and development of the report. Fred Doolittle, in his role as senior reviewer, was instrumental in the coordination and completion of this report. Robert Ivry has provided counsel and guidance throughout. The report also profited from review by Daniel Friedlander and Judith Gueron. Technical support in data preparation and processing has been provided by Joel Gordon, Shirley James, Mark Levenson, Willie Tompkins, and John Wooden. Suzanne Wagner and Sara Kaye coordinated the production of report tables. Judith Greissman edited the report, and Patt Pontevolpe, Stephanie Amy Cowell, and Claudette Edwards processed the text.

The Authors

PREFACE

At a time when post-secondary education is increasingly important to employment in well-paying jobs and, ultimately, to America's productivity as a nation, the failure of many young people to realize their full educational potential is a cause for deep concern. The Career Beginnings program, initiated by The Commonwealth Fund with major support from the Gannett Foundation and the John D. and Catherine T. MacArthur Foundation, responds to this concern. In sites across the country, the program identifies high school students with college potential who, because of their average grades and economically and/or educationally disadvantaged family backgrounds, might otherwise be unlikely to attend college. Then, through a combination of educational and employment services, it seeks to help them enroll in college or to find better jobs than they would ordinarily obtain.

This study of the impacts of Career Beginnings indicates that the program succeeded in increasing college attendance in the year immediately following high school graduation. Across the seven diverse sites included in the study, the proportion of individuals targeted by Career Beginnings who attended either a two-year or four-year college in the post-high school follow-up year rose five percentage points above the corresponding rate for members of a control group.

What does a difference of this magnitude mean? At this point, we lack a definitive answer to this question, since we do not know what proportion of the Career Beginnings and control group members will remain in college and actually graduate. We do know that college dropout rates are distressingly high, especially for those young people to whom Career Beginnings is targeted. But we also know that college graduation has a large payoff in terms of future earnings: For example, it has been estimated that, by age 40, black college graduates have earned at least $150,000 more than blacks without a college degree. Because the potential earnings gains are so great and the program cost relatively low, Career Beginnings could be a worthwhile investment even if the five-point difference narrows over the years between initial college attendance and actual college graduation.

Career Beginnings appears to offer a coherent framework for delivering services to disadvantaged youths. It also seems a promising route for enhancing their post-secondary educational attainment and life opportunities.

Judith M. Gueron
President

EXECUTIVE SUMMARY

The Career Beginnings program was initiated by The Commonwealth Fund to enhance the life options of urban high school students from low-income families. The Gannett Foundation and the John D. and Catherine T. MacArthur Foundation were major and significant partners in the effort. Launched in 1986, Career Beginnings targets high school juniors with average academic performance and seeks to assist them to enter college and upgrade their educational choices, as well as to help the non-college-bound find better jobs than they would otherwise obtain.

The underlying premise is that these students usually receive little help or support from their families or schools in completing the steps necessary to secure admission to college. Ongoing technical assistance and oversight of Career Beginnings is provided by the Center for Human Resources at Brandeis University. This final report presents findings on the services provided by Career Beginnings and the short-term impacts of the program.

OVERVIEW OF THE PROGRAM AND THE STUDY

During 1987-88 – the program's second year of operations and the period under study in this report – Career Beginnings operated in 24 sites, which had been chosen through a national competition. While the program model allows considerable flexibility and variation, features common to all sites include:

- A service delivery structure involving collaboration among a local college or university (which serves as the program sponsor), the public schools, and the business community;
- Jobs during the summer between the students' junior and senior years;
- Workshops and classes during that summer and during the senior year on such topics as taking college entrance examinations and applying for financial aid, along with such activities as college and career fairs;
- Counseling to help students make educational and career choices; and
- Adult mentors in the community, who serve as role models and actively assist youths in planning for the future.

All sites also targeted a similar student population. To be eligible for Career Beginnings, young people were expected to be enrolled in their junior year of high school, to have "substantially" exceeded minimum attendance requirements, to rank in the middle of their class academically, and to demonstrate "personal motivation and commitment beyond just school activities" (for example, by working part-time or participating in school or community activities). In addition, at a minimum, 50 percent of a site's enrollees had to be economically disadvantaged, 80 percent were to come from families in which neither parent had a college diploma, and 45 percent were to be male.

The Manpower Demonstration Research Corporation (MDRC) was asked by The Commonwealth Fund and the John D. and Catherine T. MacArthur Foundation to evaluate the effectiveness of the program in increasing rates of college attendance and employment. The evaluation examined program impacts in seven sites willing to comply with the research requirements. These locations and institutions were: the Bronx, New York (Bronx Community College); Gary, Indiana (Indiana University Northwest); Indianapolis, Indiana (Butler University); Jacksonville, Florida (Jacksonville University); Rochester, New York (University of Rochester); Santa Ana, California (Rancho Santiago Community College); and Youngstown, Ohio (Youngstown State University).

The evaluation of program impacts – the difference Career Beginnings made in the lives of students – used a rigorous methodology. During the spring of 1987, each site recruited approximately 200 high school juniors from a number of local high schools, relying primarily on school personnel (principals, teachers, and guidance counselors) to identify candidates who were interested in the program and who met the Career Beginnings eligibility criteria. The sites then followed up with additional screening criteria and procedures, such as interviews with program applicants. In all, 1,574 of these young people were then randomly assigned in equal numbers either to the experimental group – which was encouraged to take part in Career Beginnings activities – or to the control group, whose members were excluded from Career Beginnings, although they were free to participate in other services available in their schools and communities.

This report is based on the experiences of the 1,233 youths who responded to two follow-up interviews conducted one and two years after random assignment. (For most interview respondents, the first interview more or less coincided with high school graduation, while the second took place approximately one year after graduation.) Random assignment assured that there were no systematic differences at the outset between experimental and control group members. The experiences of the controls therefore provide a reliable benchmark of what would have happened to the experimentals in terms of service receipt, college attendance, and other outcomes if Career Beginnings had not existed. The differences between the controls' experiences and the actual outcomes for experimentals constitute the impacts of the services provided by Career Beginnings above and beyond the services students would have received had the program not existed, rather than the impact of these services compared to the alternative of no services.

To summarize the results across the sites: Career Beginnings increased the rate of college attendance by experimentals in the post-high school year to 53.2 percent, an increase of 4.7 percentage points (or 9.7 percent) over the 48.5 percent rate for controls. This average increase conceals a good deal of variation among the sites: The most successful sites were able to achieve increases in college-going in excess of 10 percentage points over the control group rates, while the least successful had minimal or even negative impacts – that is, the control group did as well as or even better than the experimentals. These findings suggest a number of implications for program improvement efforts as well as future research.

FINDINGS ON PROGRAM IMPLEMENTATION

- **During their senior year of high school, controls received substantially more services than had been anticipated.**

Career Beginnings is a coordinated package of services, many of which were individually available in the schools or elsewhere in the communities in which students lived. In order for the program to have an impact, experimentals had to get more services than controls. Therefore, to understand the effectiveness of Career Beginnings, it is important to examine the extent to which members of the two groups received these individual services.

Table 1 shows that controls received many of the same types of specific services as their experimental counterparts. For example, more than half the controls reported attending classes on completing forms for college admission and financial aid, college fairs or other college information events, and workshops on job-readiness skills. Two-thirds met at least twice with

TABLE 1

EXPERIMENTALS' AND CONTROLS' RECEIPT OF SPECIFIC SERVICES DURING THE SUMMER OF THE JUNIOR YEAR AND THE 1987-88 SCHOOL YEAR

Outcome	Experimentals (%)	Controls (%)	Difference
Education-Related Services			
Help with studying and test-taking skills	42.0	24.3	17.7***
Classes or workshops to prepare for college entrance exams	56.0	39.7	16.3***
Classes on completing forms for college admission and financial aid	63.9	52.8	11.1***
College fair or other college information event	60.1	56.3	3.8
Classes in reading or math, apart from regular school classes	20.1	13.7	6.4***
Individualized academic tutoring	17.6	12.9	4.7**
Received any of the six academic services listed above	86.2	82.5	3.7*
Job-Related Services			
Career fair or other job information event	56.6	41.2	15.4***
Job-readiness skills workshop on dress, lateness, etc.	69.1	56.4	12.7***
Received either of the job-related services listed above	78.2	68.5	9.7***
Other Services			
Mentor other than relative or friend	64.3	45.1	19.2***
At least two meetings with counselor	75.0	66.2	8.8***
Class or workshop on family planning	23.8	16.5	7.3***
Sample Size	621	612	

NOTES: This table includes services received from Career Beginnings and/or other sources.

Calculations for this table used self-reported data for all sample members who responded to both the 1988 and 1989 surveys.

Statistical significance levels are indicated as *** = 1 percent or less; ** = 5 percent; * = 10 percent.

a counselor, and, perhaps most surprising, 45 percent reported having a mentor who was not a relative or friend.

Furthermore, as high school seniors, about 35 percent of the youths in the control group reported having taken part in programs which, like Career Beginnings, were designed to help young adults with future jobs, careers, or college.

- **Nonetheless, at most sites, experimentals received more services than did controls, although these differences were smaller than expected and there were important differences by site in the levels of service receipt for both groups.**

Table 1 also makes clear that rates of service receipt were higher for experimentals than controls for almost all the types of services considered. However, there was considerable variation by site in the amounts and kinds of services received by experimentals and controls, and in the size of the differences between the two groups. Experimentals in Gary and Jacksonville received unusually large amounts of service, contrasted not only with controls at these sites (which were judged to offer relatively few programs and services to college-bound youths) but also with experimentals at the other sites. On the other hand, in the Bronx, an area judged to be relatively rich in services for youths, controls received more services than did experimentals – more, too, than the experimentals at several of the other sites. The Rochester program also did not succeed in providing more services to experimentals than they would otherwise have received.

Staff of the national Career Beginnings office at Brandeis University were asked to rate sites according to the strength of program implementation. Their ranking corresponds closely with what the research showed about which sites provided more services to program enrollees than they would otherwise have received.

These findings on experimental and control service levels mean that the results of the impact analysis do not compare Career Beginnings with a no-service environment. Nor do they show the impact of services in and of themselves. Instead, they indicate the incremental effects of Career Beginnings over and above an already fairly extensive array of services – that is, the various services received by the control group, which were usually, but not always, fewer than those received by youths in Career Beginnings.

- **Participants reported that they liked the program.**

Ninety percent of those experimentals who actually participated in Career Beginnings reported that the program had been very helpful or somewhat helpful in moving them toward their educational and employment goals. Among specific components, young people found assistance in completing college and financial aid applications especially valuable. Almost three-quarters of those who had mentors judged this service to be very helpful or somewhat helpful.

FINDINGS ON PROGRAM IMPACTS

- **Across the sites, 48.5 percent of the controls attended a two- or four-year college at some point during the year after high school.**

Nationwide, 40 percent of all 18- to 20-year-old high school graduates whose family incomes were below the poverty line and who were not in the Armed Forces were enrolled in college in March 1989. Therefore, it is notable that in following the experiences of a group of high school juniors who were not academically gifted, many of whom were economically disadvantaged and some of whom did not graduate from high school, 49 percent were found to be attending college within the year following their senior year in high school.

Rates of college-going were unexpectedly high even for those groups for whom a college education would not have been predicted on the basis of baseline characteristics. For example, 38 percent of the controls who had ever been suspended or expelled from school went on to college, as did 39 percent of those with grade averages of C or less at the end of their junior year and 48 percent of those whose families were receiving cash welfare. Such findings suggest that Career Beginnings may have recruited a group of high school juniors who were somewhat more motivated than average.

- **Despite the relatively high level of college enrollment among controls, Career Beginnings led to an increase in college attendance and, more generally, to raised educational aspirations among experimentals.**

The proportion of experimentals ever attending college during the follow-up year was 53.2 percent, an increase of 4.7 percentage points (or 9.7 percent) over the control group figure. This difference was statistically significant. The impact estimate of 4.7 percentage points is the most conservative, since it includes all experimentals (about one-fifth of whom did not participate in Career Beginnings) and all controls (about one-tenth of whom received some services from the program). Adjustments for these individuals, which increase the impacts somewhat, are discussed in the body of the report.

When vocational schools are included, approximately 60 percent of both experimentals and controls were counted as enrolled at some point in a post-secondary educational institution. But Career Beginnings led some who would have attended vocational schools to choose two- or four-year colleges instead, and may have led others who would have entered two-year colleges to go into bachelor's degree programs.

- **Experimental-control differences in college enrollment rates persisted throughout the post-high school year.**

As Figure 1 shows, experimentals were not only more likely than controls to go to college at some point during the follow-up period, but they were also more likely to begin college "on schedule" in the fall semester rather than later on. The experimental-control differential in college attendance was about 6 percentage points in September, October, and November, but began to narrow thereafter, as some additional controls enrolled in college during the spring term. Nonetheless, by May, the difference in the percentages of experimentals and controls in college remained statistically significant (47.9 percent versus 43.4 percent, respectively).

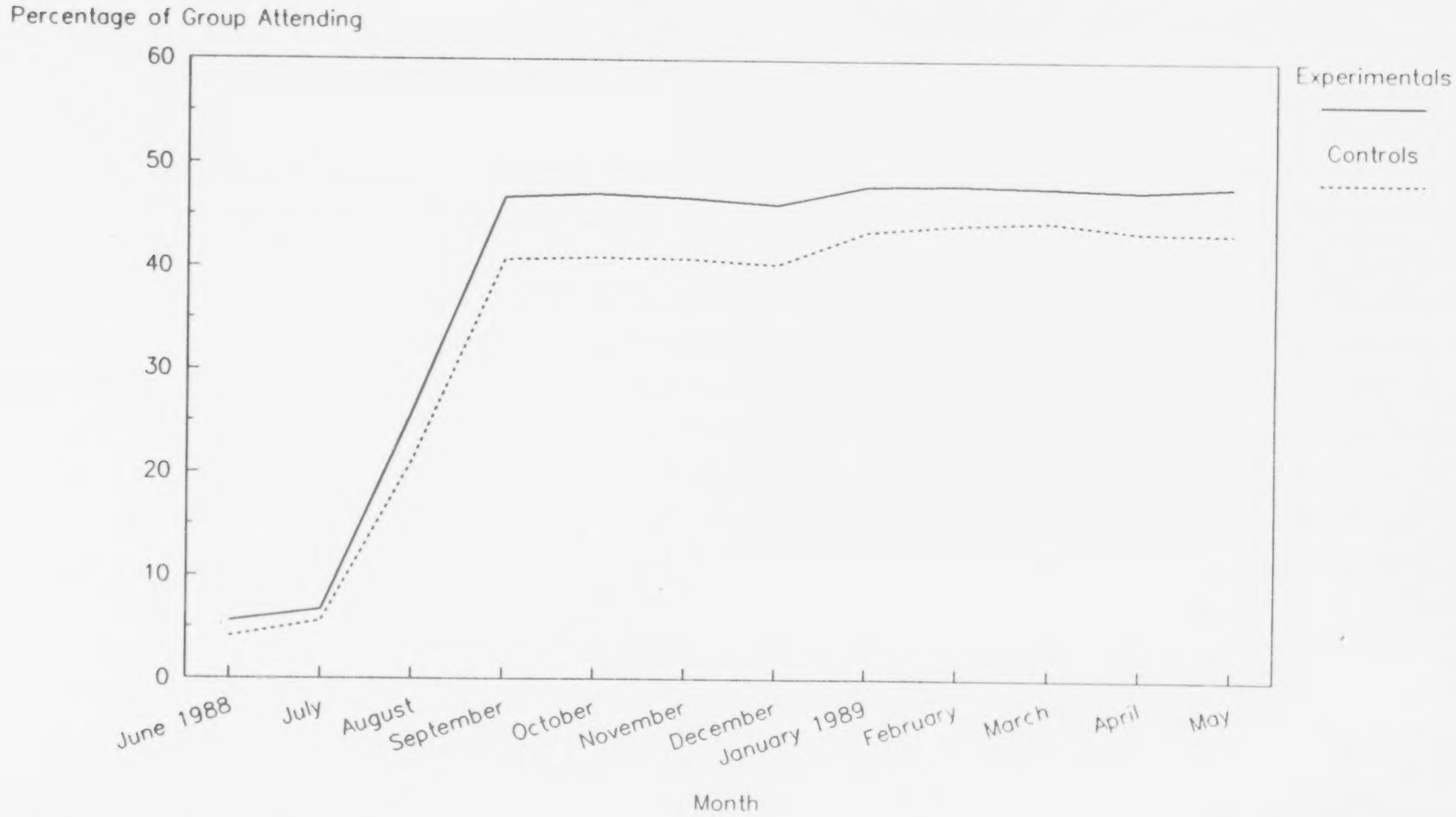
About 90 percent of all sample members, whether experimentals or controls, who attended four-year colleges in the fall remained there through the spring of their freshman year. The retention rate in two-year colleges was 81 percent.

- **No clear story emerges from the data about differential program effectiveness for different subgroups of the Career Beginnings population.**

Women in the experimental group enrolled in college earlier than their male counterparts (or than women in the control group), but they were no more likely to remain there, once admitted. By May of the follow-up year, equal percentages of men and women in the experimental group were attending college, and the experimental-control differential in college attendance was nearly equal for both sexes.

Few other demographic or socioeconomic characteristics (or clusters of characteristics) were clearly associated with program effectiveness. In contrast with some previous findings

FIGURE 1
MONTHLY ATTENDANCE AT TWO- OR FOUR-YEAR
COLLEGES, BY EXPERIMENTALS AND CONTROLS



SOURCE: Table 4.2.

that interventions have been more successful with more disadvantaged groups, students with greater academic or economic barriers to college attendance were not helped more by the program.

- **There was a good deal of site variation in the program's impact on college attendance.**

At the two sites judged to have implemented Career Beginnings most effectively, based on the judgment of Brandeis University staff and on the experimental-control difference in service receipt, the experimental-control differential in college attendance exceeded 10 percentage points. In contrast, at the two sites that were judged to have been least successful, impacts were negative (that is, controls attended college more than experimentals). Results for the remaining sites fell between these poles. While these differences in impacts across sites are not all statistically significant, the pattern of impacts corresponds with differences in service receipt across the sites.

- **As expected, experimentals worked less and earned less than controls during the follow-up year; their forgone earnings may be seen as an investment in their futures.**

An immediate short-term trade-off between attending college and working was anticipated and, in fact, occurred. While experimentals were more likely than youths in the control group to invest in their futures by enrolling in college, they were less likely ever to be employed during the follow-up period (79.9 percent versus 84.1 percent, respectively – a statistically significant difference) and had lower average earnings for the year. However, over the course of the follow-up year, the monthly employment and earnings differentials disappeared.

IMPLICATIONS FOR FUTURE RESEARCH AND PROGRAM DEVELOPMENT

The findings presented above suggest several lessons, but they do not tell the final story. One would expect, for instance, that with time, the negative employment and earnings impacts of Career Beginnings would be reversed, as experimentals leave school and move into jobs. It would also be important to know whether the program's early positive impacts on college attendance are sustained – or even increase – over time and whether college graduation rates for the two groups differ.

In the interim, this study suggests a number of key considerations for policymakers and for program planners and administrators. If a program like Career Beginnings is to have its maximum effect, sites should be chosen carefully, based on the existing level of services and the capacity of the program sponsor to implement the program effectively.

First, planners need to consider the number and kinds of services that are already available to young people. Some communities are resource-rich – that is, they have extensive programs and services to assist young people with their educational and career choices. In such areas, more attention may need to be given to coordinating and structuring services in a distinctive "package." Otherwise a new intervention is unlikely to make as much difference as would be the case if the same intervention were introduced in a relatively resource-poor area.

Second, program implementation matters. The Career Beginnings sites that were judged to have implemented the program most effectively produced the largest impacts, while sites judged the least successful at implementation had the smallest impacts. Part of the story lies in staffing. The Bronx site, where program impacts were negligible, had no full-time staff at all, while the Jacksonville site, where impacts appeared relatively large, had both a full-time project director and a full-time case manager and a dozen part-time staff members as well.

The Career Beginnings program has undergone considerable evolution. Initially, the program model under study in this report, as noted above, permitted a great deal of flexibility and variety. The national Career Beginnings office at Brandeis has since worked continuously with the sites to modify program activities and implementation practices. This study suggests the value of a more prescriptive approach, including minimum requirements to ensure that programs have the personnel necessary to give a new program the attention it needs.

Lessons about which youths should be recruited are more speculative. Career Beginnings seems to have enrolled a group of youths who were motivated both to take advantage of available services and to attend college. Although controls received substantial services, experimentals received even more, and the program was able to boost college attendance rates above the control group level.

An important open policy question is whether Career Beginnings would have been equally or more successful if it had reached a group with more serious educational or economic deficits, and what changes in the program model might be needed to do this. By the spring of junior year, many students who might have been directed toward college have already dropped out of high school. To affect the educational aspirations of these students, and to grapple more effectively with the educational and economic deficits that often block the path to college admission, it may be necessary to begin earlier in the lives of disadvantaged students. The Career Beginnings program has already embarked on this course of action.

CONTENTS

PAGE

ACKNOWLEDGMENTS iii
PREFACE v
EXECUTIVE SUMMARY vii
LIST OF TABLES xxi
LIST OF FIGURES xxiv

CHAPTER

1 INTRODUCTION 1

  I. An Overview of the Program and the Study 1
  II. The Policy Context 4

2 THE CAREER BEGINNINGS EVALUATION DESIGN 7

  I. The Research Design for the Impact Study 7
  II. Sample Characteristics 12
  III. Methodological Issues 20

3 CAREER BEGINNINGS IN OPERATION 23

  I. The Program Context 24
  II. The Program Structure 26
  III. Participant Recruitment 29
  IV. Overall Rates of Participation in Career Beginnings 30
  V. Site Variations in Service Offerings 32
  VI. Participants' Responses to the Program 34
  VII. Service Receipt by Experimentals and Controls 36

4 PROGRAM IMPACTS 59

  I. Impacts on College-Going and Type of Educational Institution Attended 60
  II. Impacts on Length of Stay and Month-by-Month Attendance in Educational Institutions 63
  III. Staying in College 63
  IV. Site and Subgroup Variations in College-Going 67
  V. Fields of Study 74
  VI. Short-Term Impacts on Employment 74
  VII. Program Impacts on "Productive Activity" 76
  VIII. Other Program Impacts 81
  IX. Effects for Experimentals Versus Effects for Participants 81

APPENDIX A: SUPPLEMENT TO CHAPTER 2 87

APPENDIX B: SUPPLEMENT TO CHAPTER 4 109

APPENDIX C: SUPPLEMENT TO CHAPTER 4 115

REFERENCES 143

SELECTED MDRC PUBLICATIONS ON YOUTH PROJECTS 145

LIST OF TABLES

TABLE		PAGE
1	EXPERIMENTALS' AND CONTROLS' RECEIPT OF SPECIFIC SERVICES DURING THE SUMMER OF THE JUNIOR YEAR AND THE 1987-88 SCHOOL YEAR	x
2.1	CHARACTERISTICS AT SAMPLE ENTRY, BY RESEARCH GROUP	13
2.2	CHARACTERISTICS AT SAMPLE ENTRY, BY SITE	17
3.1	LOCAL CONTEXT OF CAREER BEGINNINGS PROGRAMS	25
3.2	CHARACTERISTICS OF CAREER BEGINNINGS PROGRAM SPONSORS	27
3.3	PARTICIPATION IN THE CAREER BEGINNINGS PROGRAM, BY SITE AND RESEARCH GROUP	31
3.4	SPECIAL FEATURES IN THE DELIVERY OF SELECTED CAREER BEGINNINGS SERVICES, BY SITE: 1987-1988	33
3.5	PARTICIPANTS' VIEWS ON PROGRAM'S HELPFULNESS IN MOVING TOWARD THEIR EDUCATIONAL AND EMPLOYMENT GOALS: PERCENTAGE DISTRIBUTION OF EXPERIMENTAL GROUP PARTICIPANTS, BY SITE	35
3.6	PARTICIPANTS' VIEWS ON HELPFULNESS OF SPECIFIC SERVICES: PERCENTAGE DISTRIBUTION OF EXPERIMENTAL GROUP PARTICIPANTS	37
3.7	PARTICIPATION IN PROGRAMS OFFERING EDUCATION- AND JOB-RELATED SERVICES, BY SITE AND RESEARCH GROUP: 1987-1988	39
3.8	RECEIPT OF SPECIFIC SERVICES, BY RESEARCH GROUP: 1987-1988	41
3.9	PERCENTAGE DISTRIBUTION OF SAMPLE MEMBERS, BY SITE, RESEARCH GROUP, AND NUMBER OF SERVICES RECEIVED: 1987-1988	44
3.10	RECEIPT OF SELECTED SERVICES, BY SITE AND RESEARCH GROUP: 1987-1988	46
3.11	IMPACTS ON AVERAGE NUMBER OF SERVICES RECEIVED, BY SELECTED BASELINE CHARACTERISTICS	50

3.12 AMOUNT OF CONTACT WITH CAREER BEGINNINGS DURING FIRST YEAR AFTER HIGH SCHOOL: PERCENTAGE DISTRIBUTION OF EXPERIMENTAL GROUP PARTICIPANTS, BY SITE 55

3.13 RECEIPT OF SELECTED SERVICES, BY RESEARCH GROUP: 1988-1989 56

4.1 IMPACTS ON POST-SECONDARY EDUCATION: JUNE 1988-MAY 1989 61

4.2 IMPACTS ON EDUCATIONAL LENGTH OF STAY AND ON MONTHLY EDUCATIONAL STATUS 64

4.3 PERCENTAGE OF THOSE ATTENDING AN EDUCATIONAL INSTITUTION IN OCTOBER 1988 WHO WERE STILL ATTENDING IN MAY 1989 68

4.4 IMPACTS ON COLLEGE ATTENDANCE, BY SELECTED BASELINE CHARACTERISTICS 69

4.5 IMPACTS ON EMPLOYMENT 75

4.6 IMPACTS ON EARNINGS 78

4.7 IMPACTS ON PRODUCTIVE ACTIVITY 80

4.8 IMPACTS ON OTHER OUTCOMES 82

A.1 ESTIMATED REGRESSION COEFFICIENTS FOR PROBABILITY OF ASSIGNMENT TO EXPERIMENTAL GROUP 89

A.2 CHARACTERISTICS AT SAMPLE ENTRY, BY RESEARCH GROUP: THE BRONX, NEW YORK 91

A.3 CHARACTERISTICS AT SAMPLE ENTRY, BY RESEARCH GROUP: GARY, INDIANA 94

A.4 CHARACTERISTICS AT SAMPLE ENTRY, BY RESEARCH GROUP: INDIANAPOLIS, INDIANA 96

A.5 CHARACTERISTICS AT SAMPLE ENTRY, BY RESEARCH GROUP: JACKSONVILLE, FLORIDA 98

A.6 CHARACTERISTICS AT SAMPLE ENTRY, BY RESEARCH GROUP: ROCHESTER, NEW YORK 100

A.7 CHARACTERISTICS AT SAMPLE ENTRY, BY RESEARCH GROUP: SANTA ANA, CALIFORNIA 102

A.8 CHARACTERISTICS AT SAMPLE ENTRY, BY RESEARCH GROUP: YOUNGSTOWN, OHIO 104

A.9 ESTIMATED REGRESSION COEFFICIENTS FOR PROBABILITY OF UNIT SURVEY RESPONSE 106

B.1 IMPACTS ON COLLEGE ATTENDANCE DURING MAY 1989, BY SELECTED BASELINE CHARACTERISTICS 111

C.1 EXPERIMENTALS' COLLEGE ATTENDANCE, BY SELECTED BASELINE CHARACTERISTICS 118

C.2 CONTROLS' COLLEGE ATTENDANCE, BY SELECTED BASELINE CHARACTERISTICS 121

C.3 ASSOCIATION OF SERVICE RECEIPT WITH SELECTED BASELINE CHARACTERISTICS AMONG EXPERIMENTALS: ESTIMATED REGRESSION COEFFICIENTS FOR PROBABILITY OF RECEIVING SERVICES 125

C.4 ASSOCIATION OF SERVICE RECEIPT WITH SELECTED BASELINE CHARACTERISTICS AMONG CONTROLS: ESTIMATED REGRESSION COEFFICIENTS FOR PROBABILITY OF RECEIVING SERVICES 127

C.5 ASSOCIATION OF BASELINE CHARACTERISTICS AND SERVICES RECEIVED WITH COLLEGE-GOING: ESTIMATED REGRESSION COEFFICIENTS AND P VALUES FOR PROBABILITY OF ATTENDING A TWO- OR FOUR-YEAR COLLEGE, JUNE 1988-MAY 1989 130

C.6 ASSOCIATION OF BASELINE CHARACTERISTICS AND NUMBER OF SERVICES RECEIVED WITH COLLEGE-GOING: ESTIMATED REGRESSION COEFFICIENTS AND P VALUES FOR PROBABILITY OF ATTENDING A TWO- OR FOUR-YEAR COLLEGE, JUNE 1988-MAY 1989 134

C.7 EDUCATIONAL OUTCOMES FOR EXPERIMENTALS AND CONTROLS, BY NUMBER OF SERVICES RECEIVED 136

C.8 EDUCATIONAL OUTCOMES FOR EXPERIMENTALS AND CONTROLS, BY MENTORING STATUS 139

C.9 EDUCATIONAL OUTCOMES FOR EXPERIMENTALS AND CONTROLS, BY NUMBER OF SERVICES RECEIVED AND MENTORING STATUS 140

LIST OF FIGURES

FIGURE PAGE

1 MONTHLY ATTENDANCE AT TWO- OR FOUR-YEAR COLLEGES, BY EXPERIMENTALS AND CONTROLS xiv

2.1 INTAKE PROCEDURES FOR IMPACT EVALUATION SITES 9

2.2 CALENDAR OF EVENTS IN THE CAREER BEGINNINGS STUDY 10

4.1 MONTHLY ATTENDANCE AT TWO- OR FOUR-YEAR COLLEGES, BY EXPERIMENTALS AND CONTROLS 66

4.2 MONTHLY EMPLOYMENT RATES FOR EXPERIMENTALS AND CONTROLS 77

4.3 MONTHLY EARNINGS FOR EXPERIMENTALS AND CONTROLS 79

CHAPTER 1

INTRODUCTION

The Career Beginnings program, which began in 1986, is an initiative designed to assist "tenacious" high school juniors from low-income families to realize their educational and occupational potential. The program emphasizes high school completion and admission to a two-or four-year college; it also seeks to help non-college-bound students find jobs that develop their abilities. The Career Beginnings target group consists of young men and women who show perseverance in their schoolwork but are not among the top students in their class. The underlying premise is that many of these young people come from families in which a college education is not regarded as realistic, and that there are gaps in their support systems, including supports provided by the public schools, that deter them from raising their aspirations and achieving their goals.

Officials at The Commonwealth Fund initiated and originally funded the program, which was based on a prototype project, known as Career Explorations, developed at Hunter College in New York City in the early 1980s. The initiators of the program felt that in many communities economically disadvantaged high school students do not receive assistance that would allow them to understand the options open to them and make ambitious – but realistic – plans to continue their education. Career Beginnings was developed to fill this perceived service gap. The Commonwealth Fund continues to play the leadership role and has been joined by the Gannett Foundation and the John D. and Catherine T. MacArthur Foundation.

I. An Overview of the Program and the Study

During 1987-88 – the program's second year of operations and the period under study in this report – Career Beginnings operated in 24 sites, which had been chosen through a national competition; each served approximately 100 young people. While the program model allows considerable flexibility and variation, several features are common to all sites. First is the service delivery structure, involving a collaboration among a local college or university (which serves as the program sponsor), the public schools, and the business community. Typically, students are recruited from a number of high schools (in some cases, 10 or more), allowing local program sponsors to carefully select whom to admit. Second is the services themselves, which include summer jobs, workshops and classes, and counseling. The jobs are provided during the summer between the students' junior and senior years. They are supplemented with workshops and classes (during both the summer and the senior year) covering topics such as study skills, taking college entrance examinations, and applying for financial aid, as well as events such as college and career fairs. Counseling (along with related services) is provided during the summer and the senior year, and is designed to guide the students in making their educational and vocational choices. A third prominent feature of the program model is the use of mentors – adults in the community who not only act as role models but also actively assist youths in making plans for the future.

At the national level, the program is managed by the Center for Human Resources at Brandeis University. The Manpower Demonstration Research Corporation (MDRC) was asked to evaluate the effectiveness of the program in increasing rates of school completion, college attendance, and employment. The evaluation used a random assignment methodology to examine program impacts in seven of the 24 Career Beginnings sites across the country. The locations and institutions participating in the evaluation were: the Bronx, New York (Bronx Community College); Gary, Indiana (Indiana University Northwest); Indianapolis, Indiana (Butler University); Jacksonville, Florida (Jacksonville University); Rochester, New York (University of Rochester); Santa Ana, California (Rancho Santiago Community College); and Youngstown, Ohio (Youngstown State University).

The national office of Career Beginnings at Brandeis established several criteria to help ensure that the program would reach the young people to whom it was directed. To be eligible, young people were expected to:

- Be enrolled in their junior year of high school;
- Have "substantially" exceeded minimum school attendance requirements during the sophomore year, with no history of "significant disciplinary problems in school or in the community";
- Display average academic achievement, generally ranking in the middle 60 percent of their class; and
- Demonstrate "personal motivation and commitment beyond just school activities, by regularly participating in some form of school or community-based service, working part-time and contributing to the family, or the like."

Several requirements were also set at the site (rather than individual) level:

- At least 50 percent of the site's enrollees had to be economically disadvantaged, as indicated by eligibility for enrollment in programs funded by the Job Training Partnership Act (JTPA), the main federally funded vocational training initiative;
- At least 80 percent had to come from families in which neither parent had earned a college degree; and
- At least 45 percent of the Career Beginnings participants had to be male.

During the spring of 1987, approximately 200 eligible youths were recruited for Career Beginnings at each of the seven study sites, usually on the recommendation of their teachers and guidance counselors. The research design called for them to be randomly assigned in equal numbers either to an experimental group, whose members were encouraged to enroll in Career Beginnings, or to a control group, whose members were not permitted to enter the program. Members of both groups were followed up through interviews conducted one and two years after program entry. The first round of interviews was conducted in May and June of 1988, when the members of the research sample were completing their senior year of high school; the second round was conducted in May and June of 1989, one year after high school graduation for most sample members.

An interim report based on the first round of follow-up interviews at the seven study sites was prepared by MDRC in 1988. This is the second and final report on the evaluation, which includes information from the second round of interviews. The remainder of this first chapter considers the context in which Career Beginnings is unfolding, using national data to illuminate the program's rationale and potential policy relevance. The second chapter discusses the evaluation design, presenting information on the characteristics of research sample members. Appendix A, an adjunct to Chapter 2, discusses issues concerning the research methodology. Chapter 3 first describes the varied implementation of Career Beginnings in the seven sites, and then examines the extent to which the program succeeded in delivering more services to enrollees than they would otherwise have received. Chapter 4 assesses the program's impacts on college entry and retention, employment and earnings, and other outcomes, while Appendix B presents some additional impact findings. Appendix C looks at the relationship between college entry and service receipt in general, rather than Career Beginnings services in particular.

II. The Policy Context

Several factors underscore the potential policy relevance of Career Beginnings.

A number of studies have found a positive relationship between education and earnings (Mincer, 1989; Smith and Welch, 1989). A recent study commissioned by The Commonwealth Fund focuses specifically on the benefits and costs of higher education for a nationally representative sample of black high school seniors (Lewin/ICF, 1990). Using data from the National Longitudinal Study of the High School Class of 1972 and other sources, this work tracked the earnings of individuals with different amounts of post-secondary education over a 14-year period. The authors estimated that, when measured differences in family background, work experience, and ability were controlled for, a bachelor's degree added $3,450 to $4,150 to the 1984-85 earnings of college-educated men relative to those of high school graduates – an increase of 22 to 32 percent. For women, the earnings increases ranged between $3,500 and $5,100, or 32 to 38 percent. Moreover, both black men and women with college degrees were more likely to be in more prestigious occupations, and to have spouses with college degrees and more prestigious occupations, than their counterparts who were not college graduates, pointing to higher *household* as well as individual incomes. The investigators concluded that getting a college education was a very good investment for black youths.

The same study also examined the effects of obtaining a vocational credential rather than a four-year college degree. In 1984-85, men holding such a credential earned $2,800 to $3,100 more than male high school graduates but considerably less than their college-educated peers. For women, having a vocational certificate did not result in earnings increases that were statistically significant. Post-secondary education that did not result in a degree or credential also had no significant impact on earnings for either men or women.[1]

---

[1] Caution is needed in interpreting the results for vocational training because this category encompasses training programs varying widely in type and duration.

It was not possible to estimate the impact on earnings of a two-year academic degree because too few individuals in the National Longitudinal Survey of the High School Class of 1972 held such a diploma.

Long-term changes in the American economy are predicted to widen further the income gap between the well-educated and the less skilled. The *Workforce 2000* report commissioned by the U.S. Department of Labor (Johnston and Packer, 1987) draws attention to this issue. It concludes that the fastest-growing jobs will be in professional, technical, and sales occupations requiring higher education and skills levels; jobs for the least skilled will grow more slowly or actually decline in number. It notes further that of the new jobs created during the 1984-2000 period, more than half will require some education beyond high school, and almost a third will be filled by college graduates.

Paradoxically, despite the ever-increasing importance of a college education, college-going by minority-group youths declined sharply through most of the 1980s. According to a recent report using Census Bureau data (Carter and Wilson, 1989), the overall rate of college attendance rose slightly in the late 1970s and 1980s: The percentage of high school graduates between 18 and 24 years old from all ethnic groups and economic classes who attended a two- or four-year college increased from 53.4 percent in 1976 to 57.5 percent in 1988. However, the percentage for low-income black high school graduates dropped by almost 10 percentage points during the same period (from 39.8 percent to 30.3 percent). For Hispanic graduates, the rate fell even more sharply, from 50.4 percent to 35.3 percent. As the authors of the report concluded, "Since the mid-1970's, the college participation of African Americans and Hispanics has been a picture not of progress but of major regression" (p. 5). The decline in college-going was especially precipitous for low-income minority males.

There is some indication that this decline may have begun to reverse itself at the end of the 1980s. The Current Population Survey indicates that 40 percent of black high school graduates aged 18 to 20 from families with incomes below the poverty line were attending college in March 1989, an increase of almost 10 percentage points over the corresponding rate for the previous year.[2] It is unclear whether this points to the beginning of a long-term trend. Nonetheless, the disparity between rates of college attendance for white and minority youths from all income levels remains pronounced and, other factors being equal, the income gap between whites and non-whites may widen still further. Such a development could have profound implications for both the economic progress and the political stability of the nation as a whole.

---

[2] These statistics should be interpreted with care, however, owing to the small samples on which they are based. The college enrollment rate for low-income black youths was the same as for all low-income youths.

Unless a remedy is found, the problem Career Beginnings is intended to address could confront America well into the twenty-first century. In the following chapters, the report examines what has been learned from the Career Beginnings initiative.

One caveat is in order: The study, of necessity, presents an early and incomplete picture of the impacts of participation in the program. Graduating from college has much more important lifelong effects on earnings and other outcomes than merely being accepted to and starting college. An evaluation covering only the first year out of high school cannot tell the whole story, not only because college graduation remains some time in the future but also because some students may defer college for a year or longer after high school. A fuller accounting of the impacts of Career Beginnings would require several additional years of follow-up, to afford sample members the opportunity to graduate from college and to begin their post-college careers in earnest.

CHAPTER 2

THE CAREER BEGINNINGS EVALUATION DESIGN

The evaluation of Career Beginnings analyzes the effects of the program on students who were given access to it. Since some of the services offered by the program are also available from other sources, the evaluation actually measures the effects of the program over and above this "background" level of services. The sample is made up of youths who were high school seniors in 1987-88. The study examines the nature of the program's services, the extent to which youths in the study sample received such services from Career Beginnings or other sources, the resulting increase in services because of the program, and the difference access to Career Beginnings made in immediate college attendance, earnings, and other short-term outcomes. This chapter discusses the study's research design and research sample, as well as methodological issues relevant to estimating the program's impacts.

I. The Research Design for the Impact Study

A. Why Random Assignment?

To assess the *impacts* of Career Beginnings – the *difference* the program made – there had to be a measure of what would have happened to youths if they had *not* had access to it. This applies to both the level of services they would have received without the program and their subsequent educational and labor market experiences. The Career Beginnings impact evaluation measures the effect of the observed level of service increase on subsequent rates of college-going and employment, and on earnings.

The impact of Career Beginnings on college-going, for example, was the *difference the observed increase in services made* in rates of college-going. It was easy enough to measure the services received by Career Beginnings students and the proportion of program entrants who went to college – that is, the program's "outcome." However, from these "gross" rates of service receipt and college-going, some estimate of the rates that would have been observed without the program had to be subtracted to get the "net impact" of Career Beginnings. Since it was impossible to observe the same people both entering and not entering the Career Beginnings program, a comparison group of other people had to be used to measure what would have happened without the program.

The basic problem was to identify a comparison group of individuals who were as similar as possible to those entering the program. Otherwise, there would be no assurance that differences between the groups (for example, in post-program rates of college attendance) were due to the program and not to other factors, such as differences in motivation and aptitude for academic work. Selecting a comparison group by means of random assignment is the best way of ensuring that there are no systematic differences between the characteristics of experimental and comparison groups, and, therefore, that observed differences in average outcomes after random assignment can be attributed confidently to assignment to the program under study.[1]

Random assignment in Career Beginnings involved identifying a larger pool of eligible people than the program could serve, and using a random process (the equivalent of a lottery) to assign them to one of two groups. The "experimental" group was permitted to enroll in Career Beginnings, while the "control" group could not take part in the program but was free to seek other services elsewhere.

B. How Random Assignment Was Conducted

During the period in which the research sample was drawn, random assignment was part of the intake process in the seven participating sites. Figure 2.1 shows that in response to recruitment efforts youths applied for Career Beginnings, signed an informed consent form (after hearing an explanation of the study), went through the process of eligibility determination, and were randomly assigned to either the experimental or control group. Site staff then informed the students of which group they were in. Since this notification took place some time after initial application for the program and before the start-up of program activities, some students in the experimental group may have gotten involved in other activities or simply lost interest in Career Beginnings; thus, although all experimentals were encouraged to participate in Career Beginnings, about 20 percent did not do so.

While the timetable for recruitment, application, and random assignment varied by site, all the intake into the research sample took place between February and July 1987, when the students were juniors (see Figure 2.2). The program started with summer jobs that year and continued with activities during 1987-88, the students' senior year.

---

[1] A technical way to say that estimates of program effects have this desirable property is to call them "internally valid."

FIGURE 2.1

INTAKE PROCEDURES FOR IMPACT EVALUATION SITES

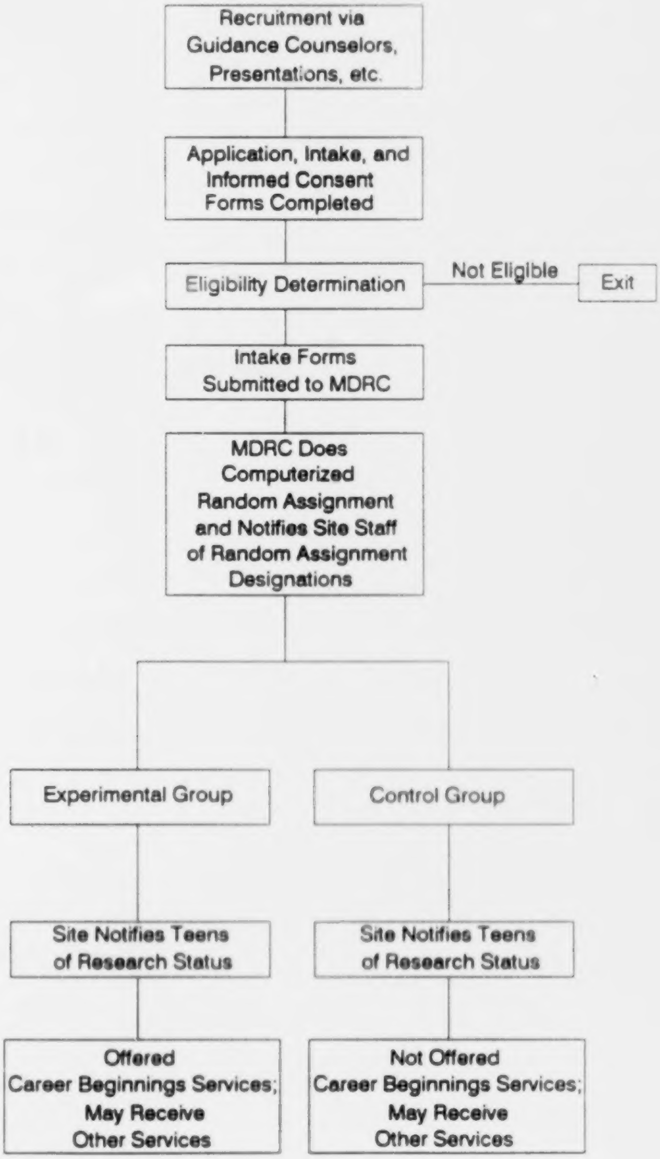
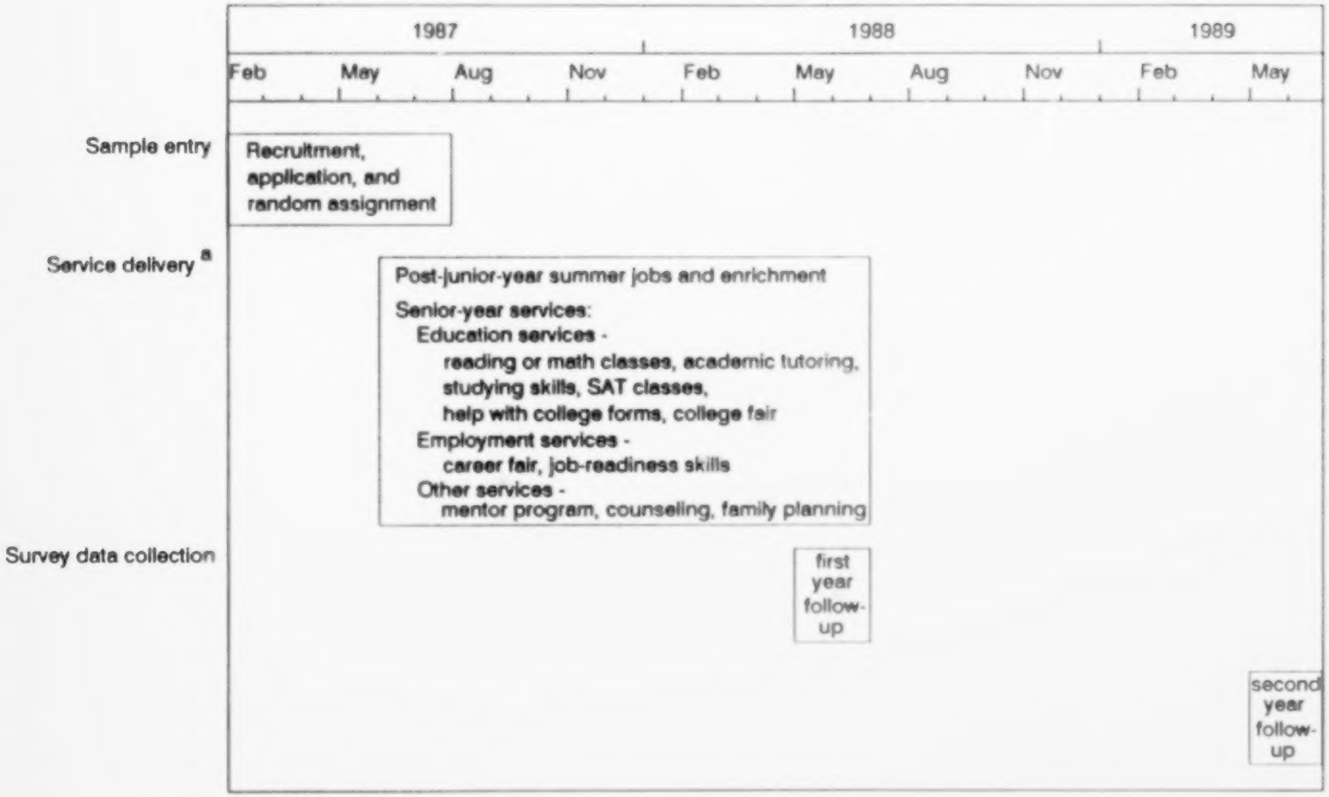

Recruitment via Guidance Counselors, Presentations, etc.
Application, Intake, and Informed Consent Forms Completed
Eligibility Determination
Not Eligible
Exit
Intake Forms Submitted to MDRC
MDRC Does Computerized Random Assignment and Notifies Site Staff of Random Assignment Designations
Experimental Group
Control Group
Site Notifies Teens of Research Status
Site Notifies Teens of Research Status
Offered Career Beginnings Services; May Receive Other Services
Not Offered Career Beginnings Services; May Receive Other Services

FIGURE 2.2

CALENDAR OF EVENTS IN THE CAREER BEGINNINGS STUDY



Note: [a] Not all services were offered by every Career Beginnings program. Both experimentals and controls could obtain services from other programs or service providers, or from their schools.

Youths in the sample were followed up through two surveys, conducted over the telephone or, when that was not possible, in person. The first-year follow-up survey was conducted at the end of the students' senior year to measure rates of participation in Career Beginnings and receipt of similar services from other sources, as well as early reports of college acceptance. The second-year follow-up survey, conducted a year later, focused on employment and attendance at colleges and vocational schools. Of the 1,574 youths randomly assigned, 1,463 (93 percent) responded to the first survey, 1,277 (81 percent) responded to the second survey, and 1,233 (78 percent) responded to both surveys. Those who responded to both surveys – ranging from 73 percent in Jacksonville, Florida, to 84 percent in Gary, Indiana – formed the impact sample for the analysis in this report.

C. Selection of Impact Study Sites

Career Beginnings started in 1986. When the sample studied in this report was drawn (mid-1987), the program operated in 24 locations across the country. The impact study included young people from seven of these sites, which agreed to comply with the evaluation procedures: the Bronx, New York; Gary, Indiana; Indianapolis, Indiana; Jacksonville, Florida; Rochester, New York; Santa Ana, California; and Youngstown, Ohio.[2]

In early 1987, at the time the impact study began, national Career Beginnings program managers at Brandeis University considered these seven sites to be generally representative of all 24 locations, despite the fact that they were not chosen randomly from all the sites. However, data collected by Brandeis in the fall of 1988 (the fall after the sample's senior year) indicated that they were not similar in one potentially important respect: A lower proportion of program terminees at the seven impact study sites reported entering college at that time than program terminees at the other 17 sites (67 percent versus 74 percent).

This does not necessarily mean that the seven sites performed worse than the others and that the impacts reported here are thus unrepresentative of the entire Career Beginnings program. Sites with lower rates of college attendance might have served youths who were less likely to attend college in the first place. If that were so, the programs in such sites might have made *more* of a difference – that is, their impacts might have been larger than for the programs in the other sites, even though their rate of college attendance was lower. However, if the lower average rate of college attendance at the impact study sites reflected weaknesses in their programs, the program impacts presented in this report are conservative estimates of the impact of Career Beginnings at all sites. It is not known which of these reasons was responsible for the different rates of college attendance because detailed information was not available for the 17 sites that were not part of the impact study.

---

[2] A site in Bakersfield, California, that was originally slated to be a part of the evaluation was dropped when it was discovered that a sizable number of those assigned to the control group had been allowed to receive program services.

II. Sample Characteristics

Forms completed at sample entry provide information on the characteristics of the sample. Table 2.1 shows that while the sample was not uniformly disadvantaged, its characteristics did not suggest a particularly college-bound group. In the table, the "Sample Size" column indicates the number of people with the indicated characteristic, and the "Experimentals" and "Controls" columns indicate the percentage of each group with the characteristic. The "p" value column indicates the probability that the observed difference in characteristics between experimentals and controls was due to chance in drawing the sample of youths rather than systematic differences. (The lower the "p" value, the more the difference is "statistically significant.") For example, the first panel of the table – on sex of the youths – shows that slightly more experimentals than controls were female and that the probability the observed difference was due solely to chance was only about 12 percent.[3]

The column labeled "Both Groups" shows the characteristics of the overall study sample. It was about two-thirds female (somewhat higher than the target amount of 55 percent) and two-thirds black and 15 percent Hispanic. About half the sample worked in the year before random assignment, and nearly 90 percent were receiving mostly Bs and Cs. Only very small fractions of sample members had ever dropped out of school, had problems with the English language, or were parents by their junior year of high school. About 40 percent of sample members lived with both of their parents, and 40 percent had been in summer work programs at some time in the past. Slightly more than one-third were taking courses that were mostly college preparatory, and one-third had at least one parent who had gone to college. About one-third were receiving cash welfare. Fewer than 20 percent had ever been expelled or suspended.

---

[3] The comparison of experimentals and controls is discussed in more detail later in this chapter and in Appendix A as part of the discussion of possible selection bias.

TABLE 2.1

CHARACTERISTICS AT SAMPLE ENTRY, BY RESEARCH GROUP

Characteristic and Subgroup	Sample Size	Experimentals (%)	Controls (%)	Both Groups (%)	p^a
Sex					
Female	791	66.3	61.9	64.2	0.119
Male	442	33.7	38.1	35.8	
Site					
The Bronx, New York	170	13.2	14.4	13.8	0.728
Gary, Indiana	179	14.5	14.5	14.5	
Indianapolis, Indiana	212	18.0	16.3	17.2	
Jacksonville, Florida	153	13.5	11.3	12.4	
Rochester, New York	174	13.0	15.2	14.1	
Santa Ana, California	162	13.5	12.7	13.1	
Youngstown, Ohio	183	14.2	15.5	14.8	
Employed anytime during the year before random assignment					
Yes	646	53.5	51.3	52.4	0.484
No	587	46.5	48.7	47.6	
Recent grade average					
A or A-	76	6.8	5.6	6.2	0.157
B+	183	12.6	17.2	14.9	
B or B-	332	27.9	26.1	27.0	
C+	279	23.7	21.6	22.7	
C or C-	298	24.2	24.3	24.2	
D+	33	2.9	2.5	2.7	
D or D-	24	1.8	2.1	2.0	
F	4	0.0	0.7	0.3	
Ever a school dropout for a semester or more					
Yes	14	1.1	1.1	1.1	1.000
No	1,219	98.9	98.9	98.9	
Problems with English and another language is usually spoken at home					
Yes	46	3.7	3.8	3.7	1.000
No	1,187	96.3	96.2	96.3	
Living with both parents					
Yes	528	43.3	42.3	42.8	0.767
No	705	56.7	57.7	57.2	

(continued)

TABLE 2.1 (continued)

Characteristic and Subgroup	Sample Size	Experimentals (%)	Controls (%)	Both Groups (%)	p[a]
Has own child(ren)					
Yes	28	1.9	2.6	2.3	0.540
No	1,205	98.1	97.4	97.7	
Ever in a summer work program					
Yes	495	40.4	39.9	40.1	0.890
No	738	59.6	60.1	59.9	
Employed anytime during the previous school year					
Yes	384	31.6	30.7	31.1	0.796
No	849	68.4	69.3	68.9	
Ever expelled or suspended					
Yes	227	19.2	17.6	18.4	0.540
No	1,006	80.8	82.4	81.6	
Ethnicity					
White, non-Hispanic	114	7.9	10.6	9.2	0.293
Black, non-Hispanic	849	70.7	67.0	68.9	
Hispanic	179	13.7	15.4	14.5	
American Indian	3	0.2	0.3	0.2	
Asian or Pacific Islander	86	7.2	6.7	7.0	
Other	2	0.3	0.0	0.2	
Family receiving cash welfare					
Yes	383	30.8	31.4	31.1	0.863
No	850	69.2	68.6	68.9	
Age 18 or older					
Yes	124	9.3	10.8	10.1	0.454
No	1,109	90.7	89.2	89.9	
Courses					
General	498	43.4	39.5	41.5	0.369
College preparatory	445	35.3	38.8	37.1	
Commercial or business	106	8.6	9.1	8.8	
Vocational or technical	134	10.7	11.6	11.2	
Other	18	2.0	1.0	1.5	
Parent(s) graduated from or attended college					
Yes	405	31.1	34.6	32.8	0.204
No	828	68.9	65.4	67.2	

(continued)

TABLE 2.1 (continued)

Characteristic and Subgroup	Sample Size	Experimentals (%)	Controls (%)	Both Groups (%)	p^a
Family receiving Food Stamps					
Yes	317	24.8	26.6	25.7	0.502
No	916	75.2	73.4	74.3	
Ever in a year-round training program not sponsored by the sample member's high school					
Yes	100	6.8	9.5	8.1	0.101
No	1,133	93.2	90.5	91.9	
Sample Size	1,233	621	612		

SOURCE: MDRC calculations from Career Beginnings enrollment form data.

NOTES: Calculations for this table used self-reported data for all 621 experimentals and all 612 controls who responded to both the 1988 and 1989 surveys. Subgroup sample sizes for some characteristics may fall short of the total number of sample members because of items missing from data for some survey responders.

Because of rounding, distributions may not total exactly 100.0 percent.

[a] The column labeled "p" is the statistical significance level of the difference between the distributions of characteristics for the experimental and control groups: that is, p is the probability that distributions are different only because of random error. A Pearson chi-square test was used to test the hypothesis of equal distributions. Statistical significance levels are indicated as *** = 1 percent or less; ** = 5 percent; * = 10 percent.

Sample characteristics varied widely by site, as shown in Table 2.2, and this must be kept in mind in interpreting the program impact findings. Certain characteristics were heavily concentrated among people at specific sites. For example, the vast majority of sample members who had problems with the English language were located at Santa Ana. Thus, it is impossible to determine broader effects of language problems on program participation and impacts. Similarly, Hispanics entered the sample at Santa Ana, the Bronx, and, to a lesser extent, Rochester; thus, it is difficult to separate out the effect of being Hispanic from any joint effect of being in one of these three locations.

Sites showed wide variation in other characteristics as well. Of the sample members at Indianapolis, 87 percent had been employed during the year before sample entry, compared with only 33 percent of the Jacksonville sample. Seventy percent of the Rochester sample members had grades that were mostly Cs, Ds, and Fs, compared with only 25 percent of their counterparts in the Bronx.[4] The proportion of men fell as low as 29 percent in Jacksonville and reached as high as 43 percent in Rochester. Santa Ana reported the highest proportion (67 percent) of sample members living with both parents. The vast majority (94 percent) of sample members at the Indianapolis site had been in summer work programs, compared with only 8 percent of those at Youngstown.

Such wide variation in sample characteristics precludes attributing differences in program participation or outcomes entirely to differences in program organization, staff, or quality. For example, compared with youths at other sites, Indianapolis sample members reported much higher rates of employment in the pre-program year and a low proportion of parents who had attended college. They may have been less inclined to go to college and thus less interested in services for the college-bound than those at other study sites. Similarly, Rochester had a high proportion of men and also students with poor grades – a harder-to-serve group than that in Jacksonville. To the extent possible, these cross-site differences have been taken into account in the analytic techniques used to examine program impacts.[5]

---

[4] Of course, grading practices may differ in different communities.

[5] Multiple regression techniques have been used to adjust for measured differences in sample members reflected in their responses to questions on the program intake form. However, many types of possible differences were not – and could not be – examined using this type of data collection approach. These unmeasured differences, which could have included such factors as expectations about future schooling and employment, could not be controlled for in this analysis.

TABLE 2.2

CHARACTERISTICS AT SAMPLE ENTRY, BY SITE

Characteristic and Subgroup	Sample Size	The Bronx, New York (%)	Gary, Indiana (%)	Indianapolis, Indiana (%)	Jacksonville, Florida (%)	Rochester, New York (%)	Santa Ana, California (%)	Youngstown, Ohio (%)	All Sites (%)	p[a]
Sex										
Female	791	69.4	62.0	67.9	71.2	57.5	62.3	59.0	64.2**	0.047
Male	442	30.6	38.0	32.1	28.8	42.5	37.7	41.0	35.8	
Employed anytime during the year before random assignment										
Yes	646	41.2	35.8	87.3	33.3	57.5	44.4	56.8	52.4***	0.000
No	587	58.8	64.2	12.7	66.7	42.5	55.6	43.2	47.6	
Recent grade average										
A or A-	76	10.7	4.5	2.8	5.9	0.6	11.2	8.8	6.2***	0.000
B+	183	32.7	10.6	8.5	10.5	9.8	17.4	16.5	14.9	
B or B-	332	31.5	29.1	22.2	29.4	19.5	34.2	25.3	27.0	
C+	279	18.5	24.6	22.6	23.5	31.6	12.4	24.7	22.7	
C or C-	298	3.0	27.9	36.8	27.5	29.9	20.5	20.9	24.2	
D+	33	0.6	2.2	3.8	1.3	5.2	2.5	2.7	2.7	
D or D-	24	1.2	1.1	3.3	2.0	3.4	1.2	1.1	2.0	
F	4	1.8	0.0	0.0	0.0	0.0	0.6	0.0	0.3	
Ever a school dropout for a semester or more										
Yes	14	2.4	1.1	2.8	0.7	0.0	0.0	0.5	1.1*	0.053
No	1,219	97.6	98.9	97.2	99.3	100.0	100.0	99.5	98.9	
Problems with English and another language is usually spoken at home										
Yes	46	0.6	0.0	0.0	0.7	1.7	25.3	0.0	3.7***	0.000
No	1,187	99.4	100.0	100.0	99.3	98.3	74.7	100.0	96.3	
Living with both parents										
Yes	528	31.8	41.3	26.4	37.3	48.9	66.7	51.4	42.8***	0.000
No	705	68.2	58.7	73.6	62.7	51.1	33.3	48.6	57.2	

(continued)

TABLE 2.2 (continued)

Characteristic and Subgroup	Sample Size	The Bronx, New York (%)	Gary, Indiana (%)	Indianapolis, Indiana (%)	Jacksonville, Florida (%)	Rochester, New York (%)	Santa Ana, California (%)	Youngstown, Ohio (%)	All Sites (%)	p^a
Has own child(ren)										
Yes	28	0.6	1.7	4.2	3.3	1.7	0.6	3.3	2.3	0.128
No	1,205	99.4	98.3	95.8	96.7	98.3	99.4	96.7	97.7	
Ever in a summer work program										
Yes	495	28.8	50.3	93.9	31.4	31.0	24.7	8.2	40.1***	0.000
No	738	71.2	49.7	6.1	68.6	69.0	75.3	91.8	59.9	
Employed anytime during the previous school year										
Yes	384	20.6	14.0	37.7	26.1	46.6	32.7	38.3	31.1***	0.000
No	849	79.4	86.0	62.3	73.9	53.4	67.3	61.7	68.9	
Ever expelled or suspended										
Yes	227	4.1	15.6	31.6	19.0	21.8	2.5	29.5	18.4***	0.000
No	1,006	95.9	84.4	68.4	81.0	78.2	97.5	70.5	81.6	
Ethnicity										
White, non-Hispanic	114	3.5	1.7	2.8	7.8	16.7	1.9	30.1	9.2***	0.000
Black, non-Hispanic	849	54.7	96.1	95.8	91.5	67.2	5.6	62.8	68.9	
Hispanic	179	39.4	1.7	0.9	0.0	13.8	45.7	4.9	14.5	
American Indian	3	0.6	0.6	0.0	0.0	0.0	0.0	0.5	0.2	
Asian or Pacific Islander	86	1.2	0.0	0.5	0.7	2.3	46.9	1.1	7.0	
Other	2	0.6	0.0	0.0	0.0	0.0	0.0	0.5	0.2	
Family receiving cash welfare										
Yes	383	27.1	36.9	34.0	14.4	27.0	34.6	40.4	31.1***	0.000
No	850	72.9	63.1	66.0	85.6	73.0	65.4	59.6	68.9	
Age 18 or older										
Yes	124	7.6	10.6	4.7	5.9	15.5	21.0	6.6	10.1***	0.000
No	1,109	92.4	89.4	95.3	94.1	84.5	79.0	93.4	89.9	

(continued)

TABLE 2.2 (continued)

Characteristic and Subgroup	Sample Size	The Bronx, New York (%)	Gary, Indiana (%)	Indianapolis, Indiana (%)	Jacksonville, Florida (%)	Rochester, New York (%)	Santa Ana, California (%)	Youngstown, Ohio (%)	All Sites (%)	p[a]
Courses										
General	498	46.5	22.4	49.0	55.3	49.7	61.1	9.9	41.5***	0.000
College preparatory	445	15.1	49.4	27.2	34.7	24.3	37.7	69.1	37.1	
Commercial or business	106	22.6	13.2	9.7	2.0	9.5	0.0	4.4	8.8	
Vocational or technical	134	14.5	13.2	13.1	6.0	13.0	0.6	16.0	11.2	
Other	18	1.3	1.7	1.0	2.0	3.6	0.6	0.6	1.5	
Parent(s) graduated from or attended college										
Yes	405	35.3	43.0	22.2	41.2	30.5	19.8	39.9	32.8***	0.000
No	828	64.7	57.0	77.8	58.8	69.5	80.2	60.1	67.2	
Family receiving Food Stamps										
Yes	317	24.7	36.3	34.0	8.5	18.4	26.5	27.3	25.7***	0.000
No	916	75.3	63.7	66.0	91.5	81.6	73.5	72.7	74.3	
Ever in a year-round training program not sponsored by the sample member's high school										
Yes	100	7.6	3.4	6.6	5.9	11.5	11.7	10.4	8.1**	0.030
No	1,133	92.4	96.6	93.4	94.1	88.5	88.3	89.6	91.9	
Sample Size	1,233	170	179	212	153	174	162	183		

SOURCE: MDRC calculations from Career Beginnings enrollment form data.

NOTES: Calculations for this table used self-reported data for all 621 experimentals and all 612 controls who responded to both the 1988 and 1989 surveys. Subgroup sample sizes for some characteristics may fall short of the total number of sample members because of items missing from data for some survey responders.

Because of rounding, distributions may not total exactly 100.0 percent.

[a] The column labeled "p" is the statistical significance level of the differences among the distributions of characteristics for the sites: that is, p is the probability that distributions are different only because of random error. A Pearson chi-square test was used to test the hypothesis of equal distributions. Statistical significance levels are indicated as *** = 1 percent or less; ** = 5 percent; * = 10 percent.

III. Methodological Issues

A. Selection Bias

Random assignment is designed to avoid "selection bias" in measuring program impacts. Without it, some people (for example, youths who were more or less motivated or successful academically) might have been more likely to have "selected" themselves, or to have been selected by others, for either the experimental or control group, thereby biasing the comparison. To ascertain that impacts have internal validity, it is important to determine whether random assignment succeeded in creating a control group with the same pre-program characteristics as those assigned to the experimental group and given access to Career Beginnings.

The columns labeled "Experimentals" and "Controls" in Table 2.1 illustrate the similarity of the two groups on individual measured characteristics. Appendix A and Table A.1 also show that the two groups did not show systematic differences in measured characteristics.[6] This similarity on measured characteristics and the underlying random process that generated the two groups provide support for the comparability of the two groups.

A final issue is the similarity of experimentals and controls within individual sites. As expected, in specific sites (where the samples were much smaller), there were such differences.[7] Since there were some differences between experimentals and controls in most sites, it was important to adjust for this in the analysis of program impacts at the site level.

---

[6] In the more rigorous analysis underlying Appendix A and Table A.1 – which involves estimating a regression with research status as the dependent variable and individual characteristics as independent variables – there was a higher chance of being assigned to the control group if one was white or had previously been in a year-round training program not sponsored by one's high school. These differences were statistically significant, that is, very unlikely to have arisen by chance when the difference does not exist in the population from which the sample was drawn. To summarize the similarity of the two groups, the analysis in Appendix A estimates that there is a 72.9 percent probability that *overall* measured characteristics were the same for experimentals and controls among the 1,233 who completed both waves of the follow-up survey and formed the sample for the impact study. This high probability assures us that random assignment to Career Beginnings did in fact succeed in producing two comparable groups.

[7] With small samples, there is less assurance that random assignment will generate exactly comparable groups, just as even a "fair" coin flipped four times may not come up heads twice. With larger samples (or more flips of the coin) the results will move toward those expected. Appendix A presents a separate table of experimental-control differences in baseline characteristics for each site (Tables A.2 through A.8).

B. Nonresponse Bias

It is necessary to determine if the 1,233 sample members who responded to both the 1988 and 1989 waves of the survey were representative of the entire Career Beginnings sample of 1,574. Table A.9 in Appendix A shows that responders were significantly less likely than nonresponders to be male, to have entered the sample at Jacksonville, to have been employed at any time in the previous school year, to have had their own children at the time they were randomly assigned, or ever to have been suspended or expelled. Responders were significantly more likely to have been living with both parents at random assignment, and to have been in college preparatory programs in their high schools.

Because of this, the results presented in this report cannot readily be generalized to the 21.7 percent of the entire Career Beginnings sample who did not complete both survey waves. Since the completion rate was so high, however, the results are representative of a broad group of the sample.

C. Implications of Services to Controls for Impact Estimates

As discussed in Chapter 3, some of the youths randomly assigned to the experimental group did not participate in Career Beginnings, and many of the controls received services similar to those provided to the experimental group. The basic estimates of program impacts presented in this report compare the experiences of all experimentals (including those not served) with all controls (including those served).[8] These estimates, therefore, are of the impact of the *added services received by the experimental group* above the level of services received by controls. If the levels of services in the two groups were similar, and the estimated impacts small, this does not necessarily mean that the program was ineffective. Rather, it could mean that the impact of the *extra "dose"* of services received by experimentals was small.

D. Impact of Participation Versus Impact of Assignment

Chapter 4 discusses ways in which the basic impact estimates (comparing all experimentals and all controls) can be adjusted to take account of nonparticipation in the program and presents alternative estimates per participant. These alternative estimates depend on specific, untestable assumptions about the effects of the program. As a result, these adjusted impacts are less reliable than the basic impact findings.

---

[8] As discussed later in this report, we used one-way linear analysis of covariance to increase the statistical precision of the impact estimates and to help correct for the slight imbalances in baseline characteristics between the treatment and control group, as reported in Table 2.2.

CHAPTER 3

CAREER BEGINNINGS IN OPERATION

The Career Beginnings program model imposed a common set of requirements on the participating sites. All sites were expected to adopt an administrative structure that entailed collaboration among the sponsoring college or university, the public schools, and the business community. All had to recruit a group of youths meeting the program's eligibility criteria. All had to deliver to these young people educational and career services aimed at helping them enter college or get good jobs. All had to recruit and supervise adults in the community to serve as mentors for the youths.

But within these broad guidelines, the model allowed for considerable diversity. The national Career Beginnings office at Brandeis University – recognizing the differences among sites in their local environments, institutional arrangements, staffing patterns, and student populations – provided considerable advice and technical assistance but also allowed local program operators considerable discretion in the way they implemented the model. The respective roles of the three institutional partners (colleges, high schools, and businesses), the recruitment procedures, the kinds and frequency of services offered, the people recruited as mentors and the degree of oversight given to this component of the program – all these could, and did, differ from site to site.

The responses of the young people were similarly varied. Teens participated in the program as a whole, and in specific program activities, at different rates at the seven sites. Different implementation practices and rates of participation, together with differences in the characteristics of program participants and the local environment (including the availability of services for college-bound youths outside of Career Beginnings), resulted in differences among the sites in the extent to which Career Beginnings participants received more services than would otherwise have been the case.

This chapter explores several aspects of program implementation. The early sections present data that are largely qualitative in nature. The discussion begins with a brief overview of the local program environments, followed by an examination of the process by which young people were recruited for the program. Next, the chapter examines the extent to which those randomly assigned to the experimental group actually participated in Career Beginnings and those assigned to the control group were successfully excluded from the program. Then attention turns to the services themselves and how they were delivered, followed by participants' assessments of the helpfulness of the program.

The later sections of the chapter focus on the kinds and amounts of services received by members of the experimental and control groups in Career Beginnings and elsewhere in their community, as measured by the interviews conducted one and two years after the youths had entered the research sample. The issue addressed is a critical one because the ability of any impact analysis to detect differences in outcomes between experimentals and controls rests on the assumption that members of the two groups will receive different treatments. Otherwise, the impact of the special services under study will be diluted, if not absent altogether.

The basic story that emerges from these findings is that at most sites, although Career Beginners did receive more services than youths who were not in the program, the difference was less than expected because youths in the control group received many more services than program planners had anticipated. The fact that controls received substantial assistance is considered in the discussion of program impacts in Chapter 4.

I. The Program Context

As Table 3.1 shows, the Career Beginnings programs under study were located in settings that varied widely in terms of population, ethnic composition, unemployment rates, percentage of the population in poverty, and other characteristics.

Every community is, of course, different. For example, those who live in one community may have a very different idea of the kind and amount of education needed for success in life than those who live elsewhere. In communities where minority youth unemployment rates are high (as in the Bronx, Gary, Rochester, and Youngstown), a college degree may be seen as essential to getting a well-paying job, and participation in programs to help youths secure admission to college might be expected to be high. On the other hand, in communities in which it is easier to find high-paying jobs without special credentials, fewer students will seek a post-secondary education or the services that would help them get such an education.

Similarly, some communities offer a range of educational and career resources to youths, while others (notably, Santa Ana among the Career Beginnings sites) have relatively few

TABLE 3.1

LOCAL CONTEXT OF CAREER BEGINNINGS PROGRAMS

Characteristic	The Bronx, New York	Gary, Indiana	Indianapolis, Indiana	Jacksonville, Florida	Rochester, New York	Santa Ana, California	Youngstown, Ohio
Total Population: 1986	1,194,000	137,000	720,000	610,000	236,000	237,000	105,000
Black and Hispanic Population: 1980 (%)	63.7	77.5	22.5	26.9	30.7	48.3	36.4
Minority Educational Attainment[a]: 1980 (%)	46.2	55.8	52.8	50.1	45.7	30.5	49.7
Poverty Rate: 1979 (%)	27.6	20.4	11.5	16.0	17.5	14.0	18.2
Minority Youth Unemployment Rate[b]: 1980 (%)	32.5	39.8	27.4	27.8	36.2	9.6	42.7
Other College and Career Services Available to High School Youth	Many	Few	Many	Some	Some	Few	Some

SOURCES: U.S. Bureau of the Census, 1987; U.S. Bureau of the Census, 1981; Brandeis University Career Beginnings National Program Office site reports and personal communications between the National Program Office and MDRC.

NOTES: All calculations are based on central city data except the Bronx calculations, which are based on county data.

[a] Percentage of black and Hispanic adults age 25 or older who have at least a high school diploma.

[b] Percentage of unemployed black and Hispanic youths age 16-19.

programs for economically disadvantaged, college-bound youths. One might expect that the introduction of a program like Career Beginnings would make more of a difference where existing programs are scarce than where they are relatively more available.

In Chapter 2, variations in the characteristics of sample members at the Career Beginnings sites were noted. Variations in the local contexts in which the Career Beginnings programs are lodged must also be borne in mind in interpreting site-specific data on program participation and impacts. Indeed, it is possible to view the program impact findings presented in this report as reflecting the interplay of three factors: the characteristics of the population eligible and selected for Career Beginnings at the site, the social and economic characteristics and existing service levels of the surrounding community, and the strength of the Career Beginnings program itself.

II. The Program Structure

In each local program, an institution of higher learning served as the program sponsor; among the seven in this study, four are publicly funded and three are private (see Table 3.2). Five offer bachelor's degrees; two are two-year colleges. They vary also in degree of selectivity, from community colleges that accept all eligible applicants to one (the University of Rochester) that accepts only a fraction of those who apply. Sponsorship by colleges was one reason most local programs emphasized the goal of post-secondary education over securing better employment for youths after they completed high school. The number of high schools from which students were recruited and selected ranged from 4 in Jacksonville to 12 in the Bronx.

Staffing patterns also varied from site to site. The Jacksonville program appears to have been especially richly staffed, with a full-time project director, full-time case manager, and 12 part-time staff during the school year. At the other end of the spectrum, the Bronx site had no full-time staff at all (and, in fact, was the only program without either a full-time project director or a full-time program coordinator or manager). The Santa Ana site was notable for its full-time mentor coordinator.

Although strong support from the sponsoring educational institution had been an important criterion in the initial competition to select Career Beginnings sites, this support did not always remain solid. The Youngstown program was discontinued after the study year because Youngstown State University no longer wished to provide funding.

TABLE 3.2

CHARACTERISTICS OF CAREER BEGINNINGS PROGRAM SPONSORS

Characteristic	The Bronx, New York	Gary, Indiana	Indianapolis, Indiana	Jacksonville, Florida
Program Sponsor	Bronx Community College	Indiana University Northwest	Butler University	Jacksonville University
Public or Private Institution	Public	Public	Private	Private
2- or 4-Year Institution	2-Year	4-Year	4-Year	4-Year
Number of High Schools Participating in Career Beginnings	12	6	7	4
Career Beginnings Staff Complement[a]	Part-time Project Director Part-time Project Coordinator 4 Part-time Counselors	8 Full-time Employees including: Part-time Project Director Full-time Project Manager	Full-time Project Director 4 Part-time Project Coordinators 4 Part-time Interns	Full-time Project Director Full-time Case Manager 12 Part-time Employees (Counselor, Tutors, Instructors) 9 Summer Staff
Nature of Institutional Support for Project	Strong	Strong	Moderate	Strong

(continued)

TABLE 3.2 (continued)

Characteristic	Rochester, New York	Santa Ana, California	Youngstown, Ohio
Program Sponsor	University of Rochester	Rancho Santiago Community College	Youngstown State University
Public or Private Institution	Private	Public	Public
2- or 4-Year Institution	4-Year	2-Year	4-Year
Number of High Schools Participating in Career Beginnings	10	5	5
Career Beginnings Staff Complement[a]	Part-time Project Director Full-time Project Coordinator 1 Other Full-time and 3 Other Part-time Employees	Part-time Project Director Full-time Project Coordinator 4 Part-time Counselors Full-time Mentor/ Industry Specialist	Part-time Project Director Full-time Project Coordinator 2 Full-time Case Managers 2 Part-time Volunteers
Nature of Institutional Support for Project	Moderate	Strong	Weak

SOURCES: Brandeis University Career Beginnings National Program Office site reports and personal communications between the National Program Office and MDRC.

NOTE: [a]Excludes clerical staff.

III. Participant Recruitment

While the national Career Beginnings office established the basic parameters of program eligibility – including junior-year status, a satisfactory attendance record, average grades, personal motivation, economic disadvantage, and parents who had not attended college – the sites were given complete discretion in determining just which individuals who met these criteria should enter the program (or, more accurately, the random assignment pool, from which a random pick of program entrants was made). Since sites were recruiting their sample members from up to 12 high schools (in that case, an average of 17 students per school), they could be selective in setting enrollment requirements.

In recruiting participants, it appears that the sites were attentive to the stipulation that enrollees show "personal motivation and commitment." Most relied on school personnel (principals, teachers, and guidance counselors) to nominate candidates who met the basic eligibility standards and then followed up with additional screening criteria and procedures. For instance, Gary expected students to demonstrate a strong interest in post-secondary education or vocational training. Five of the seven sites interviewed young people applying to the program, and several of these imposed additional requirements. Bronx Community College, for instance, would not interview teens unless they had submitted written applications that included an autobiographical essay;[1] Jacksonville and Youngstown involved the teens' parents, and Jacksonville required recommendations from teachers, ministers, or others.

Once the impact study began, the random assignment research design obligated sites to recruit twice as many teens (half of whom would be placed in the control group) as they had the first year of program operations. Although some sites found this burdensome, their basic response was to intensify rather than alter the recruitment measures they had previously adopted.[2]

---

[1] It appears that the Bronx site largely recruited youths eligible for Career Beginnings from two other programs for college-bound high school students operated by the community college. This may have weakened Career Beginnings' identity as a separate entity for young people at that site, as well as increased the likelihood of high levels of service receipt among controls.

[2] Indianapolis was one exception. In recruiting the project's first-year participants, Butler University staff had required applicants to come for an interview at the university itself, rather than at their high schools, and had regarded showing up for the interview as a sign of commitment to the program. The volume of applicants in the second year made these on-site interviews infeasible. Staff believed that as a result, the second-year group included in this study was, as a whole, less motivated than their first-year counterparts.

This screening process may have produced a group of teens who were somewhat more motivated than average students to participate in activities aimed at helping them move forward in their lives. The programs wanted to ensure that young people entering Career Beginnings would take full advantage of the services offered. But the random selection of the *control* group ensured that it would also be composed of young people who wanted to make something of themselves and would be persistent in seeking services. This characteristic of both experimentals and controls must be borne in mind in reading the remainder of this report.

IV. Overall Rates of Participation in Career Beginnings

Once students had been recruited and randomly assigned, it was important to preserve the integrity of the research groups by ensuring that those in the control group did not receive the Career Beginnings services that were supposed to be limited to experimentals. Across the sites, about 11 percent of the controls reported in the first-year interviews that they had taken part in services or activities associated with the program.[3] This relatively high percent reflects the difficulty of maintaining the intended difference between experimentals and controls when services are provided within a school attended by both groups, as was the case in some sites. It is important to note, however, that 71 percent of the controls reporting some participation in Career Beginnings also noted that they had taken part in two or fewer activities.[4] This rate and intensity of control group members' self-reported participation in Career Beginnings corresponds with information received from site staff.

Table 3.3 shows that, at every site, there was a large difference between the proportions of experimentals and controls who reported receiving Career Beginnings services. The differences in Career Beginnings participation ranged from 48 percent in the Bronx program to 81 percent in Gary, Indiana. The column in the table labeled "p" indicates the probability that the observed differences in participation between experimentals and controls was due to

---

[3] All data on participation in programs are from the follow-up surveys rather than program administrative records.

[4] Higher than average rates of control participation were reported in Santa Ana and the Bronx. In Santa Ana, where the enrollees included a sizable contingent of students of Southeast Asian origin, there is some indication that the controls who reported receiving Career Beginnings services may not have understood these particular questions. In the Bronx, half the controls who reported receiving any Career Beginnings services said they had received more than two types of services. In this regard, it is worth recalling that Bronx Community College operated a number of high school-to-college transition programs, and the distinctions among these may not have been clear to all the students.

TABLE 3.3

PARTICIPATION IN THE CAREER BEGINNINGS PROGRAM, BY SITE AND RESEARCH GROUP

Site	Sample Size	Experimentals (%)	Controls (%)	Difference	p[a]
The Bronx, New York	170	70.7	22.7	48.0***	0.000
Gary, Indiana	179	91.1	10.1	81.0***	0.000
Indianapolis, Indiana	212	72.3	6.0	66.3***	0.000
Jacksonville, Florida	153	72.6	8.7	63.9***	0.000
Rochester, New York	174	80.2	8.6	71.6***	0.000
Santa Ana, California	162	85.7	16.7	69.0***	0.000
Youngstown, Ohio	183	85.2	7.4	77.8***	0.000
All Sites	1,233	79.5	11.3	68.2***	0.000

SOURCES: MDRC calculations from Career Beginnings enrollment form and 1988 survey data.

NOTES: Calculations for this table used self-reported data for all 621 experimentals and all 612 controls who responded to both the 1988 and 1989 surveys. Participation in Career Beginnings was measured by affirmative answers to 1988 survey questions.

Because of rounding, there may be slight discrepancies in reported sums and differences of the experimental and control proportions.

[a] The column labeled "p" is the statistical significance level of the difference between experimental and control proportions: that is, p is the probability that observed proportions are different only because of random error. In this table, all p values are below 0.0005 and thus reported as 0.000 when rounded to three decimal places. A two-tailed t-test was used to test the hypothesis of equal proportions. Statistical significance levels are indicated as *** = 1 percent or less; ** = 5 percent; * = 10 percent.

chance in drawing the sample of youths for the study; the lower the p value, the more the difference is statistically significant. Here, since the differences are very large, the p values round to zero.

Table 3.3 also shows that not all those assigned to the experimental group took part in the program. Across the sites, about 80 percent of the experimentals said that they had participated in Career Beginnings; this figure ranged from 71 percent in the Bronx to 91 percent in Gary. In part, this less-than-complete participation may have reflected the fact that random assignment took place some time before the start-up of program activities (as noted in Chapter 2). In the interim, the teens may have opted to participate in other activities or simply lost interest.

V. Site Variations in Service Offerings

What it meant to be in Career Beginnings – what activities took place, where, and with what frequency – varied considerably from site to site. Table 3.4 shows this variation, highlighting the key features of five illustrative program components.

For example, Career Beginnings began with a summer job complemented by academic remediation and/or enrichment, employability and career exploration, and recreational activities. The Jacksonville summer program was unique in that Career Beginners lived for six weeks in Jacksonville University dorms, thereby getting a real taste of campus life. At the other sites, participants worked either four days a week, with a fifth day devoted to other activities, or (to accommodate the desires of local employers), five days a week, with ancillary activities taking place in the evenings and on weekends. The Indianapolis site, to build spirit and identification with the program, divided participants into teams and scheduled biweekly team meetings in addition to the larger group events.

Activities during the school year also varied in the frequency with which they were conducted and in whether they typically were offered at students' high schools or on the campus of the sponsoring institution. For instance, as the third column in Table 3.4 shows, weekly workshops providing information on how to prepare for college were offered in Gary and Indianapolis at the high schools, while in Jacksonville, they took place at the university. Santa Ana and Rochester also held these workshops on-campus, but less frequently (Santa Ana monthly, and Rochester three times over the course of the year). Workshops to prepare students for college entrance exams (the fourth column) were generally held on-campus, but

TABLE 3.4

SPECIAL FEATURES IN THE DELIVERY OF SELECTED CAREER BEGINNINGS SERVICES, BY SITE: 1987-1988

Site	Summer Enrichment Activities	College Preparation Information Sessions	Preparation for College Entrance Exams	Career Exploration Activities	Case Management
The Bronx, New York	Orientation, 6 "fifth-day" workshops, college visits	On-campus, using staff of admissions and financial aid offices	On-campus or subsidized private course	Monthly meetings with counselors	Not implemented
Gary, Indiana	Orientation by JTPA staff, 6 weekday workshops	Weekly, at high schools	On-campus	A few workshops, field trips	Not implemented
Indianapolis, Indiana	Evening and Saturday workshops, biweekly "team meetings"	Weekly, at high schools	On-campus, but also at high schools	Career fair; also included in meetings with mentors and counselors	Monthly counselor contact (in person or by phone)
Jacksonville, Florida	6-week on-campus living experience combining work, education, counseling	Weekly, on-campus	At high schools (open to non-Career Beginnings students)	On-campus workshops	Weekly small group meetings
Rochester, New York	Week-long orientation before work experience, 3 workshops	3 on-campus workshops	Not offered by program; referrals to high school or other classes	Workshops in high schools	Not implemented
Santa Ana, California	6 "fifth-day" workshops combining academic work, career planning	Monthly, on-campus	On-campus	On-campus workshops	Monthly individual and small group meetings, weekly monitoring
Youngstown, Ohio	3-day orientation, 3 1-day workshops	At high schools	On-campus	Workshops in high schools	Monthly counselor contact (in person or by phone)

SOURCES: Brandeis University Career Beginnings National Program Office site reports.

Bronx participants could also enroll in a private course (the cost of which was defrayed by the program); the Rochester program did not offer this service directly, instead referring Career Beginners to workshops offered by their high schools.

The staff of the national office increasingly realized the importance of case management and counseling for individual participants. As the sixth column shows, they judged three of the sites (the Bronx, Gary, and Rochester) to be unable to implement an effective case management component during the study year. The other sites differed in both the frequency (weekly or monthly) and type (small group or individual, telephone or in-person contact) of case management efforts.

If other components were selected for scrutiny, the same message of variation would emerge. (Sites differed, for example, in the amount of training they provided to mentors and the degree of supervision of mentor-student relationships.) As the national Career Beginnings office concluded in analyzing the study sites' senior-year activities, the sites yielded "the impression of a . . . mosaic of differing approaches to implement these components" (Career Beginnings National Program Office, 1988).

What the data in Table 3.4 do not convey is a sense of the overall "quality" of each program, as gauged by the amount of attention given to the program by supervisory personnel, the degree of innovation, and the ability of staff to relate to and motivate participants. National Career Beginnings office staff, who regularly monitored program activities, developed their own informal ratings. In their view, the Gary and Jacksonville sites were especially strong. At the other end of the spectrum, they judged the Bronx and Rochester sites to be quite weak.

VI. Participants' Responses to the Program

Members of the experimental group who actually participated in Career Beginnings were asked the extent to which they considered the program to have helped them move toward their educational and employment goals. Table 3.5 shows their responses. Almost half (46 percent) said that the program had been very helpful to them in planning their future after high school, and another 44 percent described it as somewhat helpful. Overall, only 10 percent thought that the program had not helped them at all. Teens in Gary and Santa Ana responded especially favorably to Career Beginnings; teens in the Bronx and Indianapolis were somewhat more negative than their counterparts elsewhere, but even at these sites, the large majority regarded the program as at least somewhat helpful to them.

TABLE 3.5

PARTICIPANTS' VIEWS ON PROGRAM'S HELPFULNESS IN MOVING TOWARD THEIR EDUCATIONAL AND EMPLOYMENT GOALS: PERCENTAGE DISTRIBUTION OF EXPERIMENTAL GROUP PARTICIPANTS, BY SITE

Site	Sample Size	Very Helpful (%)	Somewhat Helpful (%)	Not At All Helpful (%)	All Categories (%)	p[a]
The Bronx, New York	58	36.2	43.1	20.7	100.0***	0.000
Gary, Indiana	81	58.0	37.0	4.9	100.0***	0.000
Indianapolis, Indiana	81	43.2	42.0	14.8	100.0***	0.000
Jacksonville, Florida	61	47.5	44.3	8.2	100.0***	0.000
Rochester, New York	65	46.2	44.6	9.2	100.0***	0.000
Santa Ana, California	72	51.4	43.1	5.6	100.0***	0.000
Youngstown, Ohio	74	36.5	56.8	6.8	100.0***	0.000
All Sites	492	45.9	44.3	9.8	100.0***	0.000

SOURCES: MDRC calculations from Career Beginnings enrollment form and 1989 survey data.

NOTES: Calculations for this table used data for all 494 experimentals who responded to both the 1988 and 1989 surveys and who reported participation in the Career Beginnings program. Sample sizes reported may fall short of this number because of items missing from data for some survey responders.

Because of rounding, rows may not total exactly 100.0 percent.

[a]The column labeled "p" is the statistical significance level of the differences among category proportions: that is, p is the probability that observed proportions are different only because of random error. In this table, all p values are below 0.0005 and thus reported as 0.000 when rounded to three decimal places. A Pearson chi-square test was used to test the hypothesis of equal proportions. Statistical significance levels are indicated as *** = 1 percent or less; ** = 5 percent; * = 10 percent.

Career Beginnings participants were also asked to assess the helpfulness of the specific program components that comprise the Career Beginnings model. In general, as seen in Table 3.6, the large majority of those who received any given service found it helpful (although, as noted below, participants were much less likely to receive some services than others). Most of the participants (81 percent) received assistance in completing college and financial aid applications, and almost half that number (39 percent of the total) believed it was very helpful. Mentoring was the second most frequently received service: More than 75 percent of the participants had mentors, and almost three-quarters of those who did (56 percent of the total) found this service either very helpful or somewhat helpful.

It is clear, then, that most participants looked positively upon their experiences in the program.

VII. Service Receipt by Experimentals and Controls

Did Career Beginnings lead to higher levels of service receipt than would have occurred without the program? The remainder of the chapter examines this issue, using several approaches to compare the experiences of experimental and control group members. The discussion starts by considering the amount of participation in special programs other than Career Beginnings while the study group was still in high school. Next, data on the receipt of individual services are presented. Then, differences in service receipt among sample members at the seven sites under study are probed. Finally, service utilization in the post-high school follow-up year is discussed.

A. Participation in Other Special Programs

As part of the follow-up interview, young people were asked whether they had participated in programs other than Career Beginnings that were designed to help young adults with future jobs, careers, or college. (The question further noted that these programs or activities might be offered by high schools, community groups, churches, or other organizations.) The top panel of Table 3.7 presents the results. It shows that across the sites, similar proportions of experimentals and controls took part in such programs (37 percent of the experimentals versus 35 percent of the controls). Only in Santa Ana was there a statistically significant difference between the two groups. Rates of control group participation in special programs were especially high in the Bronx, Indianapolis, and Jacksonville.

TABLE 3.6

PARTICIPANTS' VIEWS ON HELPFULNESS OF SPECIFIC SERVICES:
PERCENTAGE DISTRIBUTION OF EXPERIMENTAL GROUP PARTICIPANTS

Program Service	Sample Size	Very Helpful (%)	Somewhat Helpful (%)	Not At All Helpful (%)	Did Not Participate (%)	All Categories (%)	p[a]
Education-Related Services							
Help with studying and test-taking skills	490	30.8	28.8	13.3	27.1	100.0***	0.000
Classes or workshops to prepare for college entrance exams	492	31.1	28.5	13.0	27.4	100.0***	0.000
Classes on completing forms for college admission and financial aid	492	39.4	27.0	14.4	19.1	100.0***	0.000
College fair or other college information event	492	23.2	23.6	14.6	38.6	100.0***	0.000
Classes in reading or math, apart from regular school classes	492	15.9	17.7	13.2	53.3	100.0***	0.000
Individualized academic tutoring	492	15.7	11.6	14.2	58.5	100.0***	0.000
Job-Related Services							
Career fair or other job information event	491	26.3	29.1	11.8	32.8	100.0***	0.000
Job-readiness skills workshop on dress, lateness, etc.	491	32.0	25.9	12.0	30.1	100.0***	0.000
Other Services							
Mentor other than relative or friend	492	31.9	24.2	20.5	23.4	100.0***	0.003
At least two meetings with counselor	492	32.7	25.8	12.6	28.9	100.0***	0.000
Class or workshop on family planning	492	13.4	18.7	14.8	53.0	100.0***	0.000

(continued)

TABLE 3.6 (continued)

SOURCES: MDRC calculations from Career Beginnings enrollment form and 1989 survey data.

NOTES: This table includes services received from Career Beginnings and/or other sources.

Calculations for this table used data for all 494 experimentals who responded to both the 1988 and 1989 surveys and who reported participation in the Career Beginnings program. Sample sizes reported may fall short of this number because of items missing from data for some survey responders.

Because of rounding, rows may not total exactly 100.0 percent.

[a] The column labeled "p" is the statistical significance level of the differences among category proportions: that is, p is the probability that observed proportions are different only because of random error. A Pearson chi-square test was used to test the hypothesis of equal proportions. Statistical significance levels are indicated as *** = 1 percent or less; ** = 5 percent; * = 10 percent.

TABLE 3.7

PARTICIPATION IN PROGRAMS OFFERING EDUCATION- AND JOB-RELATED SERVICES, BY SITE AND RESEARCH GROUP: 1987-1988

Outcome and Site	Sample Size	Experimentals (%)	Controls (%)	Difference	p[a]
Active in programs other than Career Beginnings					
The Bronx, New York	170	47.6	40.9	6.7	0.386
Gary, Indiana	179	35.6	32.6	3.0	0.677
Indianapolis, Indiana	212	42.9	39.0	3.9	0.571
Jacksonville, Florida	153	29.8	42.0	-12.2	0.116
Rochester, New York	174	30.9	35.5	-4.6	0.522
Santa Ana, California	162	31.0	19.2	11.8*	0.087
Youngstown, Ohio	183	40.9	31.6	9.3	0.191
All sites	1,233	37.2	34.5	2.7	0.320
Active in Career Beginnings and/or other programs					
The Bronx, New York	170	81.7	52.3	29.4***	0.000
Gary, Indiana	179	93.3	34.8	58.5***	0.000
Indianapolis, Indiana	212	80.4	42.0	38.4***	0.000
Jacksonville, Florida	153	79.8	44.9	34.9***	0.000
Rochester, New York	174	81.5	39.8	41.7***	0.000
Santa Ana, California	162	88.1	29.5	58.6***	0.000
Youngstown, Ohio	183	88.6	35.8	52.8***	0.000
All sites	1,233	84.7	39.9	44.8***	0.000

SOURCES: MDRC calculations from Career Beginnings enrollment form and 1988 survey data.

NOTES: Calculations for this table used self-reported data for all 621 experimentals and all 612 controls who responded to both the 1988 and 1989 surveys. Participation in Career Beginnings and/or other programs was measured by affirmative answers to 1988 survey questions.

Because of rounding, there may be slight discrepancies in reported sums and differences of the experimental and control proportions.

[a]The column labeled "p" is the statistical significance level of the difference between experimental and control proportions: that is, p is the probability that observed proportions are different only because of random error. A two-tailed t-test was used to test the hypothesis of equal proportions. Statistical significance levels are indicated as *** = 1 percent or less; ** = 5 percent; * = 10 percent.

The bottom panel of the table indicates that on a site-by-site basis, from 30 to 52 percent of the controls, and from 82 to 93 percent of the experimentals, were in either Career Beginnings or another program. At every site, the experimental-control difference was large and highly statistically significant. Since, as noted above, experimental and controls participated at similar rates in other programs, it is safe to conclude that Career Beginnings itself made the difference – that is, that Career Beginnings significantly increased the extent of participation in special educational and employment-oriented programs for teens in the experimental group.[5] At the same time, the data also show that the increment in service provision for the Career Beginnings target population was not as large as program planners originally expected, since more than one-third of the controls did make use of alternative programs.

B. Receipt of Specific Services

Table 3.8 considers the extent to which experimentals and controls received the specific services that make up Career Beginnings, whether in Career Beginnings itself, in other programs, at their schools, or elsewhere.

One caveat is need in presenting these data: Career Beginnings should not be viewed merely as an aggregation of separate services. In the view of personnel in both the national Career Beginnings office and the local sites, the program's purpose was not simply to offer services, but to weave through these services a set of messages and themes aimed at enhancing participants' feelings of self-worth and their ability to plan for the future. Thus, the table is not in itself an adequate gauge of the program's implementation success. Nonetheless, one would expect impacts to be undercut if Career Beginners and control group members received very similar levels of individual services.

The table shows that controls did receive services, but the level of service receipt for experimentals was higher for most activities, and these differences were statistically significant. The mentoring component, an important part of Career Beginnings, showed the largest difference: 64 percent of the experimentals reported having a mentor, while 45 percent of the

---

[5] It is worth noting that the percentage of teens in the experimental group who reported participation in Career Beginnings and/or another special program was not much larger than the percentage of teens in Career Beginnings (see Table 3.3). While 80 percent of the teens in the experimental group reported participating in Career Beginnings and 37 percent reported being in another program, 85 percent were in Career Beginnings and/or another program. Thus, one can conclude that most teens in the experimental group who took part in other programs did so in addition to their Career Beginnings activities.

TABLE 3.8

RECEIPT OF SPECIFIC SERVICES, BY RESEARCH GROUP: 1987-1988

Outcome	Experimentals (%)	Controls (%)	Difference	p[a]
Education-Related Services				
Help with studying and test-taking skills	42.0	24.3	17.7***	0.000
Classes or workshops to prepare for college entrance exams	56.0	39.7	16.3***	0.000
Classes on completing forms for college admission and financial aid	63.9	52.8	11.1***	0.000
College fair or other college information event	60.1	56.3	3.8	0.181
Classes in reading or math, apart from regular school classes	20.1	13.7	6.4***	0.003
Individualized academic tutoring	17.6	12.9	4.7**	0.023
Received any of the six academic services listed above	86.2	82.5	3.7*	0.077
Job-Related Services				
Career fair or other job information event	56.6	41.2	15.4***	0.000
Job-readiness skills workshop on dress, lateness, etc.	69.1	56.4	12.7***	0.000
Received either of the job-related services listed above	78.2	68.5	9.7***	0.000
Other Services				
Mentor other than relative or friend	64.3	45.1	19.2***	0.000
At least two meetings with counselor	75.0	66.2	8.8***	0.001
Class or workshop on family planning	23.8	16.5	7.3***	0.001
Sample Size	621	612		

(continued)

TABLE 3.8 (continued)

SOURCES: MDRC calculations from Career Beginnings enrollment form and 1988 survey data.

NOTES: This table includes services received from Career Beginnings and/or other sources.

Calculations for this table used self-reported data for all 621 experimentals and all 612 controls who responded to bpth the 1988 and 1989 surveys. Receipt of specific services was measured by affirmative answers to 1988 survey questions.

Because of rounding, there may be slight discrepancies in reported sums and differences of the experimental and control proportions.

[a] The column labeled "p" is the statistical significance level of the difference between experimental and control proportions: that is, p is the probability that observed proportions are different only because of random error. A two-tailed t-test was used to test the hypothesis of equal proportions. Statistical significance levels are indicated as
*** = 1 percent or less; ** = 5 percent; * = 10 percent.

controls also noted that they had someone other than a parent, another relative, or a close personal friend who took a special interest in helping them plan for future jobs or schooling. Other large differences in service receipt included: (1) help with studying and test-taking skills (42 percent to 24 percent), (2) workshops on how to take the SATs and other college entrance examinations (56 percent to 40 percent), and (3) a career fair or other job information event (57 percent to 41 percent). Relatively few members of either group were likely to participate in remedial or enrichment classes apart from regular school, to receive tutoring, or to attend a family planning workshop, but experimental-control differences persisted in these areas as well.

The table also groups services into three categories: education-related (the largest category), job-related, and other career services. More than 80 percent of both experimentals and controls took part in at least one activity aimed at helping them to succeed academically or to enter college, and more than two-thirds of each group attended an employment-related activity.

Overall, then, the message is that while more experimentals participated in the activities that make up the Career Beginnings model than did their control group counterparts, young people in both groups received substantial amounts of service.

C. Site Variations in Service Receipt

There was considerable variation by site in the amounts and kinds of services received by experimentals and controls, and in the size of the differences in services between the two groups.

For each of the seven sites under study, Table 3.9 shows the percentages of experimentals and controls who received, from any source, zero to 11 of the different services listed in Table 3.8, as well as the average number of services received by members of each group. Two findings stand out. First, experimentals in Gary and Jacksonville received unusually large amounts of service, contrasted not only with controls at these sites but also with experimentals at the other sites. Second, differences in the mean number of services received by experimentals and controls at the Bronx and Rochester sites were not statistically significant, indicating that the Career Beginnings programs at these sites did not provide more services to experimentals than they would otherwise have received. (Bronx controls received more services than those at any other site and, indeed, more than experimentals at several sites.)

TABLE 3.9

PERCENTAGE DISTRIBUTION OF SAMPLE MEMBERS, BY SITE, RESEARCH GROUP, AND NUMBER OF SERVICES RECEIVED: 1987-1988

		Number of Services						
Site and Research Group	Sample Size	None (%)	1-2 (%)	3-5 (%)	6-8 (%)	9-11 (%)	Total (%)	Mean Number of Services
The Bronx, New York								
Experimentals	82	2.4	14.6	37.8	29.3	15.9	100.0*	5.2
Controls	88	0.0	11.4	31.8	47.7	9.1	100.0	5.6
Gary, Indiana								
Experimentals	90	1.1	6.7	20.0	53.3	18.9	100.0***	6.5***
Controls	89	1.1	22.5	36.0	34.8	5.6	100.0	4.8
Indianapolis, Indiana								
Experimentals	112	6.3	20.5	33.0	26.8	13.4	100.0***	4.9***
Controls	100	5.0	26.0	51.0	17.0	1.0	100.0	3.7
Jacksonville, Florida								
Experimentals	84	1.2	9.5	32.1	31.0	26.2	100.0***	6.2***
Controls	69	2.9	26.1	43.5	15.9	11.6	100.0	4.4
Rochester, New York								
Experimentals	81	1.2	23.5	39.5	29.6	6.2	100.0	4.6
Controls	93	4.3	23.7	39.8	30.1	2.2	100.0	4.1
Santa Ana, California								
Experimentals	84	3.6	9.5	36.9	40.5	9.5	100.0***	5.5***
Controls	78	7.7	32.1	35.9	21.8	2.6	100.0	3.7
Youngstown, Ohio								
Experimentals	88	1.1	15.9	28.4	40.9	13.6	100.0***	5.5***
Controls	95	9.5	25.3	46.3	17.9	1.1	100.0	3.5
All sites								
Experimentals	621	2.6	14.5	32.4	35.7	14.8	100.0***	5.5***
Controls	612	4.4	23.7	40.8	26.6	4.4	100.0	4.2

SOURCES: MDRC calculations from Career Beginnings enrollment form and 1988 survey data.

NOTES: This table includes services received from Career Beginnings and/or other sources.

Calculations for this table used self-reported data for all 621 experimentals and all 612 controls who responded to both the 1988 and 1989 surveys. Participation in specific services was measured by affirmative answers to 1988 survey questions.

Because of rounding, rows may not total exactly 100.0 percent.

A Pearson chi-square test was used to test the hypothesis of equal distributions for experimentals and controls. Statistical significance levels are indicated as *** = 1 percent or less; ** = 5 percent; * = 10 percent.

Table 3.10 examines the extent to which members of the two research groups at the different sites received, from any source, six key services for which the experimental-control differential *across* sites was especially large (see Table 3.8): mentoring, study and test-taking skills, preparing for college entrance examinations, applying to college and to get financial aid, gaining exposure to different careers, and learning about employers' expectations for conduct on the job.

The table shows, first, that the proportion of teens in the experimental group who reported receiving a given service varied considerably from site to site. For example, the percentage reporting having mentors ranged from 42 percent in the Bronx to 75 percent in Rochester. Similarly, the proportion attending a career fair or other event to inform attendees about various occupational choices ranged from 43 percent in the Bronx to 67 percent in Gary.

To some extent, these differences can be related to differences in the implementation of the components across the sites. As indicated in Table 3.3, the Rochester Career Beginnings program did not itself offer classes preparing participants for college entrance exams, instead referring them to activities operated by the public schools; and the proportion of Rochester experimentals who indicated that they had attended a class or workshop in this area was lower than at any other site. By contrast, in the Bronx, participants could attend either workshops given by the college or a private course; there, a relatively high percentage of enrollees received this service.

In other cases, the relationship between implementation and participation is not straightforward. For example, one might expect that the absence of an effective case management component would result in lower levels of service receipt. This would seem to be confirmed by the experience of the Bronx and Rochester sites, which were judged not to have put case management in place, and which were marked by relatively low rates of participation in many activities. On the other hand, the Gary site, which also did not implement case management, led the other sites in the percentage of experimentals receiving many of the services examined.

Table 3.10 also indicates that the percentages of controls receiving a given service varied, although on most of the indicators, the range was smaller for controls than for experimentals. Control group teens in the Bronx and Gary received especially large amounts of service, while

TABLE 3.10

RECEIPT OF SELECTED SERVICES, BY SITE AND RESEARCH GROUP: 1987-1988

Outcome and Site	Sample Size	Experimentals (%)	Controls (%)	Difference	p^a
Had mentor other than relative or friend					
The Bronx, New York	170	41.5	52.3	-10.8	0.160
Gary, Indiana	179	66.7	56.2	10.5	0.151
Indianapolis, Indiana	212	58.0	45.0	13.0*	0.058
Jacksonville, Florida	153	71.4	53.6	17.8**	0.023
Rochester, New York	174	75.3	48.4	26.9***	0.000
Santa Ana, California	162	66.7	17.9	48.8***	0.000
Youngstown, Ohio	183	71.6	41.1	30.5***	0.000
All sites	1,233	64.3	45.1	19.2***	0.000
Received help with studying and test-taking skills					
The Bronx, New York	170	42.7	43.2	-0.5	0.948
Gary, Indiana	178	64.4	35.2	29.2***	0.000
Indianapolis, Indiana	211	33.9	14.1	19.8***	0.001
Jacksonville, Florida	153	52.4	26.1	26.3***	0.001
Rochester, New York	174	19.8	19.4	0.4	0.948
Santa Ana, California	162	28.6	15.4	13.2**	0.044
Youngstown, Ohio	183	52.3	17.9	34.4***	0.000
All sites	1,231	42.0	24.3	17.7***	0.000
Attended classes or workshops to prepare for college entrance exams					
The Bronx, New York	170	64.6	55.7	8.9	0.236
Gary, Indiana	179	76.7	48.3	28.4***	0.000
Indianapolis, Indiana	211	49.5	36.0	13.5**	0.048
Jacksonville, Florida	153	53.6	43.5	10.1	0.217
Rochester, New York	174	35.8	37.6	1.8	0.804
Santa Ana, California	161	54.8	28.6	26.2***	0.001
Youngstown, Ohio	182	56.8	28.7	28.1***	0.000
All sites	1,230	56.0	39.7	16.3***	0.000

(continued)

TABLE 3.10 (continued)

Outcome and Site	Sample Size	Experimentals (%)	Controls (%)	Difference	p[a]
Attended classes on completing forms for college admission and financial aid					
The Bronx, New York	170	48.8	60.2	-11.4	0.136
Gary, Indiana	179	67.8	50.6	17.2**	0.019
Indianapolis, Indiana	212	67.0	59.0	8.0	0.232
Jacksonville, Florida	153	64.3	47.8	16.5**	0.041
Rochester, New York	174	51.9	52.7	-0.8	0.913
Santa Ana, California	162	73.8	55.1	18.7**	0.013
Youngstown, Ohio	183	71.6	43.2	28.4***	0.000
All sites	1,233	63.9	52.8	11.1***	0.000
Attended a career fair or other job information event					
The Bronx, New York	170	42.7	52.3	-9.6	0.213
Gary, Indiana	179	66.7	49.4	17.3**	0.019
Indianapolis, Indiana	212	47.3	28.0	19.3***	0.004
Jacksonville, Florida	153	63.1	46.4	16.7**	0.039
Rochester, New York	174	54.3	31.2	23.1***	0.002
Santa Ana, California	162	59.5	52.6	6.9	0.376
Youngstown, Ohio	182	64.4	33.7	30.7***	0.000
All sites	1,232	56.6	41.2	15.4***	0.000
Attended a job-readiness skills workshop on dress, lateness, etc.					
The Bronx, New York	170	46.3	60.2	-13.9*	0.070
Gary, Indiana	179	92.2	64.0	28.2***	0.000
Indianapolis, Indiana	212	63.4	57.0	6.4	0.345
Jacksonville, Florida	153	70.2	47.8	22.4***	0.005
Rochester, New York	173	65.0	58.1	6.9	0.353
Santa Ana, California	162	71.4	47.4	24.0***	0.002
Youngstown, Ohio	182	74.7	56.8	17.9**	0.011
All sites	1,231	69.1	56.4	12.7***	0.000

SOURCES: MDRC calculations from Career Beginnings enrollment form and 1988 survey data.

NOTES: This table includes services received from Career Beginnings and/or other sources.

Calculations for this table used self-reported data for all 621 experimentals and all 612 controls who responded to both the 1988 and 1989 surveys. Participation in selected services was measured by affirmative answers to 1988 survey questions. Sample sizes may fall short of the total number of sample members because of items missing from data for some survey responders.

Because of rounding, there may be slight discrepancies in reported sums and differences of the experimental and control proportions.

[a] The column labeled "p" is the statistical significance level of the difference between experimental and control proportions: that is, p is the probability that observed proportions are different only because of random error. A two-tailed t-test was used to test the hypothesis of equal proportions. Statistical significance levels are indicated as *** = 1 percent or less; ** = 5 percent; * = 10 percent.

their counterparts in Indianapolis, Santa Ana, and Youngstown received relatively little assistance.

Finally, as would be anticipated from the preceding discussion, the experimental-control *differential* in service receipt varied a great deal among the sites. For example, in Santa Ana, three and a half times as many experimentals as controls (67 percent versus 18 percent) reported having mentors. In Gary, Rochester, and Youngstown, the proportion of experimentals with mentors was the same as or slightly higher than in Santa Ana, but because more controls also had mentors, the experimental-control differential at these three sites was not as large as in Santa Ana. The Bronx site ranked second-highest (surpassed only by Gary) in the proportion of experimentals receiving preparation for taking college entrance exams, but the percentage of Bronx controls receiving this assistance was also higher than at any other site. As a result, there was no statistically significant difference between the proportions of Bronx experimentals and controls receiving this service.

Significantly higher proportions of experimentals than controls at the Youngstown site received all six of the services listed in Table 3.10. At Gary, Jacksonville, and Santa Ana, higher proportions of experimentals received five of the six services. Rochester experimentals were more likely than controls to have had mentors and to have attended a career fair, but were not more likely to have gotten the other four kinds of services. Bronx experimentals fared the worst; in fact, they were *less* likely than controls to receive all the types of services indicated.

These data help to provide a statistical handle on program "quality." In assessing "quality," it is critical to take into account not only the *level* of service receipt (that is, the percentage of enrollees taking part in a given activity or set of activities) but also the *strength* of the treatment (that is, whether program participation results in substantially more service than would otherwise be the case). It is particularly noteworthy that the national Career Beginnings office's ranking of sites (discussed in an earlier section) corresponds to a considerable degree with the ranking of sites according to their ability to provide more services to program enrollees than they would otherwise have received. That ranking rated the programs in Gary and Jacksonville as especially strong and the Bronx and Rochester to have serious weaknesses. Nonetheless, it is important to remember that many factors other than the way in which Career Beginnings was implemented – including the characteristics of the target population and of the surrounding community – can have a critical effect on service receipt.

D. Variations in Service Receipt by Subgroup

Besides program site, were there other factors that affected the amount of service sample members received? In particular, were the demographic, socioeconomic, or school-related characteristics of sample members at baseline associated with subsequent service utilization?

Table 3.11 compares the mean number of different services received by experimentals and controls with different baseline characteristics.[6] These baseline characteristics are organized into categories, which have different subgroups. To take an obvious example, the two subgroups under the category "Sex" are female and male; other subgroups reported in the table are those who were employed in the year prior to entry into Career Beginnings and those who were not, those who had ever dropped out of school for a semester or more and those who had not, and so forth.

The table addresses two key issues: Within which subgroups were experimental-control differences in service receipt statistically significant? And, were some subgroups more likely than others to receive more services?

The experimental-control differential in service receipt is shown in the column of the table labeled "Subgroup Impact," while the probability that differential could have arisen by chance appears in the column to the right labeled "p". Within most subgroups, experimentals received a significantly larger average number of services than did controls. For example, women in the experimental group received an average of 5.5 services, while women in the control group received an average of 4.2 services; men in the experimental and control groups received, on average, 5.5 and 4.3 services, respectively. Experimentals who had never dropped out of high school received, on average, 5.5 services, compared to the average of 4.2 services received by controls who had never dropped out. There are only a few exceptions to the

---

[6] The service receipt data in this table, unlike the other tables in the chapter, are statistically adjusted. This is necessary because when the sample is partitioned into subgroups, the other characteristics of sample members may not be randomly distributed across these subgroups. For example, if men are more likely to drop out of high school than women, unadjusted data on service receipt for men and women would reflect not only the differential by sex but also the differential by prior dropout status. Statistical adjustments treat the data *as if* the dropout rate (as well as any other differences) were equally distributed between men and women, thereby making it possible to isolate the specific effect of sex on service receipt.

TABLE 3.11

IMPACTS ON AVERAGE NUMBER OF SERVICES RECEIVED,
BY SELECTED BASELINE CHARACTERISTICS

		Average Number of Services Received During 1987-1988					
Characteristic and Subgroup	Sample Size	Experimentals	Controls	Subgroup Impact	p[a]	Subgroup Impact Difference[b]	p[a]
Sex						0.1	0.855
Female	791	5.5	4.2	1.3***	0.000	---	---
Male	442	5.5	4.3	1.2***	0.000	---	---
Site						---	0.000
The Bronx, New York	170	5.2	5.5	-0.3	0.373	---	---
Gary, Indiana	179	6.3	4.6	1.8***	0.000	---	---
Indianapolis, Indiana	212	4.7	3.6	1.2***	0.001	---	---
Jacksonville, Florida	153	6.3	4.4	1.9***	0.000	---	---
Rochester, New York	174	4.9	4.4	0.5	0.155	---	---
Santa Ana, California	162	5.5	3.6	1.9***	0.000	---	---
Youngstown, Ohio	183	5.7	3.8	1.9***	0.000	---	---
Employed anytime during the year before random assignment						0.0	0.913
Yes	646	5.5	4.2	1.2***	0.000	---	---
No	587	5.5	4.2	1.3***	0.000	---	---
Recent grade average						0.2	0.450
A or B	595	5.8	4.5	1.4***	0.000	---	---
C, D, or F	638	5.2	4.0	1.1***	0.000	---	---
Ever a school dropout for a semester or more						-2.1	0.124
Yes	14	4.9	5.7	-0.8	0.554	---	---
No	1,219	5.5	4.2	1.3***	0.000	---	---
Problems with English and another language is usually spoken at home						0.3	0.695
Yes	46	5.4	3.8	1.5**	0.037	---	---
No	1,187	5.5	4.3	1.2***	0.000	---	---
Living with both parents						-0.2	0.526
Yes	528	5.4	4.3	1.1***	0.000	---	---
No	705	5.5	4.2	1.3***	0.000	---	---

(continued)

TABLE 3.11 (continued)

		Average Number of Services Received During 1987-1988					
Characteristic and Subgroup	Sample Size	Experimentals	Controls	Subgroup Impact	p^a	Subgroup Impact Difference^b	p^a
Has own child(ren)						0.7	0.473
Yes	28	5.4	3.4	1.9**	0.043	---	---
No	1,205	5.5	4.3	1.2***	0.000	---	---
Ever in a summer work program						0.0	0.940
Yes	495	5.8	4.6	1.3***	0.000	---	---
No	738	5.3	4.0	1.2***	0.000	---	---
Employed anytime during the previous school year						-0.2	0.558
Yes	384	5.3	4.2	1.1***	0.000	---	---
No	849	5.6	4.3	1.3***	0.000	---	---
Ever expelled or suspended						0.0	0.940
Yes	227	5.4	4.2	1.2***	0.000	---	---
No	1,006	5.5	4.2	1.3***	0.000	---	---
Ethnicity						---	0.003
White, non-Hispanic	114	3.9	3.8	0.1	0.837	---	---
Black, non-Hispanic	849	5.8	4.3	1.5***	0.000	---	---
Hispanic	179	5.1	4.6	0.5	0.185	---	---
Other	91	5.5	3.5	2.0***	0.000	---	---
Family receiving cash welfare						-0.1	0.674
Yes	383	5.3	4.2	1.2***	0.000	---	---
No	850	5.6	4.3	1.3***	0.000	---	---
Age						-0.6	0.187
18 or older	124	5.2	4.5	0.7	0.124	---	---
17 or under	1,109	5.5	4.2	1.3***	0.000	---	---
Courses mostly college preparatory						0.9***	0.004
Yes	449	6.0	4.2	1.8***	0.000	---	---
No	784	5.2	4.3	0.9***	0.000	---	---
Parent(s) graduated from or attended college						0.3	0.376
Yes	405	5.6	4.2	1.4***	0.000	---	---
No	828	5.4	4.3	1.2***	0.000	---	---

(continued)

TABLE 3.11 (continued)

Characteristic and Subgroup	Sample Size	Average Number of Services Received During 1987-1988		Subgroup Impact	p[a]	Subgroup Impact Difference[b]	p[a]
		Experimentals	Controls				
Family receiving Food Stamps						0.1	0.864
Yes	317	5.4	4.1	1.3***	0.000	---	---
No	916	5.5	4.3	1.2***	0.000	---	---
Ever in a year-round training program not sponsored by the sample member's high school						-0.4	0.425
Yes	100	5.9	5.0	0.9*	0.087	---	---
No	1,133	5.4	4.2	1.3***	0.000	---	---

SOURCES: MDRC calculations from Career Beginnings enrollment form and 1988 survey data.

NOTES: This table includes services received from Career Beginnings and/or other sources. A participant could receive a maximum of 11 services (see Table 3.6).

Calculations for this table used self-reported data for all 621 experimentals and all 612 controls who responded to both the 1988 and 1989 surveys, including those with values of zero for outcomes and those who were assigned to Career Beginnings but did not participate. Subgroup sample sizes for some characteristics may fall short of the total number of sample members because of items missing from data for some survey responders.

Average experimental and control group outcomes reported here are adjusted means from two-way analysis of covariance procedures controlling for up to 23 kinds of difference in characteristics, other than the characteristic used to define subgroups, before random assignment. The two categories used as factors were research assignment and, one at a time, the baseline characteristics indicated (see Ostle, 1975, p. 454). Because of rounding, there may be slight discrepancies in reported sums and differences of these adjusted means.

[a] Two-tailed t-tests were applied to within-subgroup impacts and also to differences between subgroup impacts. For each characteristic with more than two subgroups (site and ethnicity), an F test was applied to the interaction between that characteristic and experimental or control status. The columns labeled "p" are the statistical significance levels of each impact, each difference between impacts, or each F statistic: that is, p is the probability that sample estimates are non-zero only because of random error. Statistical significance levels are indicated as *** = 1 percent or less; ** = 5 percent; * = 10 percent.

[b] For each characteristic that has only two subgroups, the subgroup impact difference is the impact within the first subgroup, less the impact within the second subgroup.

general rule that being in the experimental group was associated with a significant increase in the number of services received.

But did belonging to any *particular* subgroup also result in a significant increase in services? Were women, for instance, likely to receive more services than men? Were students who had never dropped out likely to receive more services than those who had? The two right-most columns of the table answer these questions. The column labeled "Subgroup Impact Difference" shows the difference between the impacts registered by subgroups within a category, and the "p" column shows the probability that the difference was itself statistically significant. The subgroup impact difference for three of the baseline characteristics was statistically significant (that is, had an associated p value of 0.10 or less). The first concerned those students who were taking mostly college preparatory courses. Career Beginnings was notably more successful in increasing the level of service receipt among experimentals in college preparatory courses vis-a-vis their control group counterparts who were also in a college track than in increasing service receipt among non-college-preparatory experimentals vis-a-vis non-college-preparatory controls.

Site and ethnicity also showed statistically significant differences, although the table does not specify the "difference" per se because multiple categories are involved.[7] Table 3.11 yields few additional clues about which subgroups benefited most in terms of increased services during the program year.

E. Service Receipt in the Year After Career Beginnings

If higher proportions of experimentals than controls continued to receive career services during the post-graduation year, larger impacts might be expected. There are two factors that make a hypothesis of increased levels of services to experimentals during this period a reasonable one.

First, all but two of the seven sites (Jacksonville and Rochester) received supplemental funding to provide more services to program alumni than were called for in the original model.[8] Known as "Next Step," this entailed different activities at the sites. For example, Bronx

---

[7] The value in the "p" column in these cases is the F-test value. As with the p values for two-category characteristics, an F value of less than 0.10 represents a statistically significant difference among the categories.

[8] Although Youngstown State University left the national demonstration, the national program office contracted with a former Career Beginnings staff member at that site to provide these follow-up activities.

Community College set up a peer advisor and tutoring network, in which former Career Beginners attending other colleges were trained to provide assistance to recent Career Beginnings graduates who were freshmen at their institutions; the Indianapolis site established an alumni case manager position. Career Beginnings students contacted and aided in this way might be expected to weather the vicissitudes of freshman year more successfully than controls, who presumably lacked such assistance. Second, the very experience of receiving assistance and support during the Career Beginnings program year may have increased participants' propensity to seek help afterwards.

The second follow-up interview asked former Career Beginnings participants whether they had any contact with the program in the year after high school. The majority, as indicated in Table 3.12, had not. However, the proportion retaining some tie to the program differed considerably among the sites. Seventy percent of Gary participants continued to be in touch with Career Beginnings staff, compared with fewer than one-quarter of the Rochester participants.

Table 3.13 indicates the extent to which members of the research sample received services of various kinds, from any source, during the 1988-89 follow-up year. For both experimentals and controls, levels of service receipt were low, with virtually no statistically significant differences between the two groups. (Experimentals were slightly more likely than controls to get counseling.)

To summarize: At most sites, Career Beginnings delivered on its promise of providing more educational and career services to program participants than they would have received otherwise. But the premise that these students would otherwise have received few if any services was not borne out. In fact, service receipt by members of the control group was substantial, albeit lower than that of experimentals.

There are at least two explanations for why controls received more services than anticipated. First, both the general Career Beginnings eligibility criteria and the specific screening methods used by sites to select participants may have served to ensure that most members of the research sample – experimentals and controls alike – would be motivated to seek and make use of available services. A second explanation is that economically disadvantaged college-oriented youths may not be as overlooked as had been thought. At most sites, there were other programs for disadvantaged teens for which the entry criteria overlapped in some measure with those of Career Beginnings. Moreover, the high schools provided some

TABLE 3.12

AMOUNT OF CONTACT WITH CAREER BEGINNINGS DURING FIRST YEAR AFTER HIGH SCHOOL:
PERCENTAGE DISTRIBUTION OF EXPERIMENTAL GROUP PARTICIPANTS, BY SITE

Site	Sample Size	A Lot (%)	Some (%)	A Little (%)	None (%)	All Categories (%)	p[a]
The Bronx, New York	58	5.2	5.2	20.7	69.0	100.0***	0.000
Gary, Indiana	82	15.9	25.6	28.1	30.5	100.0	0.256
Indianapolis, Indiana	81	4.9	19.8	27.2	48.2	100.0***	0.000
Jacksonville, Florida	61	6.6	8.2	18.0	67.2	100.0***	0.000
Rochester, New York	65	3.1	7.7	12.3	76.9	100.0***	0.000
Santa Ana, California	72	4.2	20.8	37.5	37.5	100.0***	0.000
Youngstown, Ohio	73	8.2	6.9	17.8	67.1	100.0***	0.000
All Sites	492	7.1	14.2	23.6	55.1	100.0***	0.000

SOURCES: MDRC calculations from Career Beginnings enrollment form and 1989 survey data.

NOTES: Calculations for this table used self-reported data for all 494 experimentals who responded to both the 1988 and 1989 surveys and who reported participation in the Career Beginnings program. Sample sizes reported may fall short of this number because of items missing from data for some survey responders.

Because of rounding, rows may not total exactly 100.0 percent.

[a] The column labeled "p" is the statistical significance level of the differences among category proportions: that is, p is the probability that observed proportions are different only because of random error. A Pearson chi-square test was used to test the hypothesis of equal proportions. Statistical significance levels are indicated as *** = 1 percent or less; ** = 5 percent; * = 10 percent.

TABLE 3.13

RECEIPT OF SELECTED SERVICES, BY RESEARCH GROUP: 1988-1989

Outcome	Sample Size	Experimentals (%)	Controls (%)	Difference	p^a
Received help with studying and test-taking skills	1,227	18.2	19.3	-1.1	0.593
Took classes in reading or math, apart from regular school classes	1,231	17.0	15.5	1.5	0.494
Got individualized academic tutoring	1,231	12.8	10.1	2.7	0.147
Attended a career fair or other job information event	1,230	15.0	12.9	2.1	0.280
Attended a job-readiness skills workshop on dress, lateness, etc.	1,230	9.4	8.0	1.4	0.401
Met at least twice with counselor	1,231	26.5	22.2	4.3*	0.081
Sample Size	1,233	621	612		

SOURCES: MDRC calculations from Career Beginnings enrollment form and 1989 survey data.

NOTES: This table includes services received from Career Beginnings and/or other sources.

Calculations for this table used self-reported data for all 621 experimentals and all 612 controls who responded to both the 1988 and 1989 surveys. Participation in selected services was measured by affirmative answers to 1989 survey questions. Sample sizes may fall short of the total number of sample members because of items missing from data for some survey responders.

Because of rounding, there may be slight discrepancies in reported sums and differences of the experimental and control proportions.

[a] The column labeled "p" is the statistical significance level of the difference between experimental and control proportions: that is, p is the probability that observed proportions are different only because of random error. A two-tailed t-test was used to test the hypothesis of equal proportions. Statistical significance levels are indicated as *** = 1 percent or less; ** = 5 percent; * = 10 percent.

93

assistance in a number of areas, from sponsoring college and career fairs to helping students prepare for college admissions tests. In any event, as discussed in Chapter 4, the levels of service receipt among members of both groups are critical to understanding the impacts registered by the program.

CHAPTER 4

PROGRAM IMPACTS

Eighty-six percent of the young people in the Career Beginnings study sample had graduated from high school by the end of June 1988 and were ready to embark on their futures.[1] Some had a fairly clear idea of what their futures would hold: They had applied to and been accepted for college or had specific work or training alternatives in mind. Others were less sure; some of these had not applied to college or had applied but not been accepted.[2] Their options would unfold over the coming months.

This chapter uses survey data gathered about one year after high school graduation to report on the effectiveness of Career Beginnings in attaining its immediate objectives: increasing rates of college attendance as well as helping the non-college-bound to find better jobs than they would otherwise obtain. In both these ways, the program sought to enhance the long-term career potential of its participants.

To evaluate any program, it is necessary to answer two basic questions. First, on average, what happened to those who were offered the program? Second, on average, what would have happened to them had they not been offered the program? The average effect, or "impact," of a program is the difference between these two outcomes. As explained in Chapter 2, since assignment to Career Beginnings was random, there were no overall systematic differences between experimentals and controls at enrollment, and outcomes for controls provide a measure of what would have happened to experimentals without the program. Chapter 3 discussed differences in the levels of service receipt of those in the experimental and control groups.

This chapter addresses several key questions related to the impacts in this service difference on post-secondary education, employment, and other aspects of sample members' lives. With respect to education, it asks, first: What impact did the Career Beginnings program have on enrollment in post-secondary education – in particular, college? Did Career

---

[1] 86.8 percent of the experimentals and 85.3 percent of the controls had received a high school diploma by that time, a difference that was not statistically significant. During the follow-up year, about 7 percent more of those in both groups who did not receive a diploma with their graduating class acquired either a high school diploma or a GED certificate.

[2] About 15 percent of the sample members who had not applied or been accepted to college by the spring of their senior year went to a two- or four-year college during the follow-up year.

Beginnings affect whether students completed their freshman year in college? Moreover, how did the impact on college-going vary by site and by the characteristics of the sample at baseline? What kinds of programs did sample members choose?

The analysis also explores the short-term relationship between access to the program and subsequent employment. If Career Beginnings succeeds in increasing college attendance, then one might expect those in the experimental group to work and earn *less* than controls in the short run. This is because college can be seen as an *investment* that entails the sacrifice of immediate earnings in the interest of long-term income gains. The study therefore asks: Did Career Beginnings have an impact on the employment and earnings of sample members during the year-long follow-up period? Did it affect their likelihood of entering the military? And, were experimentals more likely than controls to be engaged in some kind of productive activity, whether attendance at college, employment, or military service?

Finally, the research investigates other questions of interest. Did Career Beginnings affect sample members' place of residence? Was there an impact on marital status and child-bearing?

In the main body of the chapter, impacts are presented for *all* members of the experimental and control groups. The last section of the chapter discusses the adjustments that can be made if the impacts are reported only for experimentals who actually participated in Career Beginnings, or if the impacts of Career Beginnings on controls who received services from the program are taken into account. It should be noted, however, that these adjustments are simply another way of looking at the same results and would not materially change the story that emerges from the data.

I. Impacts on College-Going and Type of Educational Institution Attended

The impact analysis reveals that, in keeping with the objectives of Career Beginnings, more experimentals than controls attended college during the follow-up period. The first line of Table 4.1 shows that 48.5 percent of the controls attended a four-year or two-year college at some point between June 1988 and May 1989, while 53.2 percent of experimentals did so. This impact of 4.7 percentage points represents a 9.7 percent increase over the control group mean and was statistically significant, that is, unlikely to have arisen entirely by chance.

The findings indicate that almost half of the control group attended college, even without substantial access to Career Beginnings. As pointed out in Chapter 1, in recent years approximately 58 percent of all high school graduates have gone on to college by the age of

TABLE 4.1

IMPACTS ON POST-SECONDARY EDUCATION: JUNE 1988-MAY 1989

Outcome	Experimentals (%)	Controls (%)	Difference	p[a]	Percentage Change[b]
Ever attended a 4- or 2-year college	53.2	48.5	4.7*	0.071	9.7
Attended a 4-year college	35.6	33.5	2.0	0.397	6.0
Attended a 2-year college	18.3	16.2	2.1	0.290	13.0
Ever attended a vocational school	8.3	12.2	-3.9**	0.022	-32.0
Ever attended any form of post-secondary education	61.2	59.4	1.8	0.491	3.0
Ever received a scholarship	39.3	36.0	3.3	0.210	9.2
Ever took out a loan for school	21.6	21.5	0.1	0.971	0.5
Sample Size	621	612			

SOURCES: MDRC calculations from Career Beginnings enrollment form and 1989 survey data.

NOTES: Calculations for this table used self-reported data for all 621 experimentals and all 612 controls who responded to both the 1988 and 1989 surveys, including those with values of zero for outcomes and those who were assigned to Career Beginnings but did not participate.

Average experimental and control group outcomes reported here are adjusted means from a linear analysis of covariance procedure controlling for 24 kinds of difference in characteristics before random assignment (see Ostle, 1975, p. 461; Cave, 1987). Because of rounding, there may be slight discrepancies in reported sums and differences of these adjusted means.

[a] The column labeled "p" is the statistical significance level of the difference between experimental and control group outcomes: that is, p is the probability that average outcomes are different only because of random error. A two-tailed t-test was applied to differences between average experimental and control group outcomes. Statistical significance levels are indicated as *** = 1 percent or less; ** = 5 percent; * = 10 percent.

[b] The percentage change column expresses the difference as a percentage of the control group outcome.

24; thus, it is noteworthy that a group of students from disadvantaged communities who were high school juniors at the onset of the study achieved a 48.5 percent rate of college attendance one year after their expected completion of high school.

Slightly more than one-third of the controls attended four-year colleges, compared to 35.6 percent of experimentals, a difference of 2 percentage points. Slightly more than 16 percent of controls and 18.3 percent of experimentals attended a two-year college, an impact of 2.1 percentage points. Neither impact was statistically significant.

Just over 12 percent of controls, compared to about 8 percent of the experimentals, attended vocational schools, a reduction of 3.9 percentage points that was statistically significant. The table further indicates that when all forms of post-secondary education – four-year colleges, two-year colleges, and vocational schools – are considered together, 59.4 percent of controls and 61.2 percent of experimentals attended one or more of these institutions by May 1989, a difference of 1.8 percentage points that was not statistically significant. Career Beginnings did not, therefore, lead to an overall increase in post-secondary education.

The data suggest, however, that the program induced some experimentals to change the *kind* of post-secondary schooling they would otherwise have received. Apparently, Career Beginnings may have led some who would have attended vocational programs to choose two-year degree programs or four-year colleges, and led others who would have begun at a two-year college to go into bachelor's degree programs.

Interestingly, Career Beginners were not better financed to attend college than their control group counterparts. Thirty-nine percent of the experimentals reported having received a scholarship compared with 36 percent of the controls, a difference that was not statistically significant. Another way of viewing these findings is that about three-quarters of the college attenders in both groups received scholarship aid.[3] Just over one-fifth of all sample members – experimentals and controls alike – took out a loan to attend school.

---

[3] That is, 53.2 percent of all experimentals ever attended college, and 39.3 percent ever received a scholarship; 39.3/53.2 = 73.8 percent. Among controls, 48.5 percent attended college, and 36.0 percent received a scholarship; 36.0/48.5 = 74.2 percent.

II. Impacts on Length of Stay and Month-by-Month Attendance in Educational Institutions

Table 4.2 shows length of stay and month-by-month attendance at four-year and two-year colleges and vocational schools. The table includes all experimentals and controls, both those who entered post-secondary education and those who did not.

The top panel shows that Career Beginnings increased the length of stay at four-year and two-year colleges, considered together, by a little over one-half month, an impact that was statistically significant.[4] This finding reflects two facts: that experimentals were more likely to go to college in the first place and that, as the next panels of the table make clear, they were also more likely to begin four-year colleges "on schedule" in the fall semester rather than later on. The month-by-month impact on attendance at two- or four-year colleges grew from 4.7 percentage points in August to about 6 percentage points in September, October, and November, as also shown in Figure 4.1. Thereafter, the experimental-control differential began to narrow, as some additional controls enrolled in college during the spring term.

As noted in Table 4.1, experimentals were significantly less likely than controls to enroll in vocational schools, and this is reflected in their shorter length of stay and lower month-by-month attendance rates in these institutions.

III. Staying in College

An important gauge of success in college is the extent to which students who begin college remain there and eventually graduate. Because of the brevity of the follow-up period, this evaluation is necessarily limited in what it can say about this. However, completion of a year of college is a preliminary indicator of longer-term success.

The evaluation takes two different approaches to measuring retention in college. One is to note the proportion of students who ever attended college and were still attending in May 1989. Table 4.2 shows that during that month, 47.9 percent of the experimentals and 43.4 percent of the controls were attending two-year or four-year colleges, for a statistically significant impact of 4.5 percentage points. Thus, the experimental-control differential in college attendance that was evident at the beginning of the school year held up at its end.

---

[4] Note that these figures include youths in each group who did not attend college and hence stayed for zero months.

TABLE 4.2

IMPACTS ON EDUCATIONAL LENGTH OF STAY AND ON MONTHLY EDUCATIONAL STATUS

Outcome	Experimentals	Controls	Difference	p^a
Length of stay through May 1989 (in months) at a				
4-year college	3.25	2.94	0.31	0.168
2-year college	1.46	1.31	0.14	0.402
4- or 2-year college	4.64	4.13	0.51**	0.033
Vocational school	0.51	0.83	-0.32**	0.012
College or vocational school	5.14	4.85	0.29	0.229
Attended a 4- or 2-year college during (%)				
June 1988	5.6	4.1	1.5	0.222
July	6.7	5.6	1.1	0.406
August	26.0	21.2	4.7**	0.035
September	46.7	40.7	5.9**	0.021
October	47.1	40.9	6.1**	0.017
November	46.7	40.8	5.9**	0.021
December	46.1	40.3	5.7**	0.026
January 1989	47.9	43.5	4.4*	0.095
February	48.0	44.2	3.8	0.146
March	47.8	44.5	3.4	0.197
April	47.5	43.5	3.9	0.132
May	47.9	43.4	4.5*	0.081
Attended a 4-year college during (%)				
June 1988	4.5	3.0	1.5	0.145
July	5.2	3.9	1.3	0.283
August	17.5	14.8	2.7	0.157
September	32.9	28.7	4.2*	0.080
October	33.2	28.9	4.3*	0.072
November	33.0	28.9	4.1*	0.085
December	32.5	28.8	3.7	0.116
January 1989	32.9	30.7	2.3	0.344
February	33.2	31.0	2.3	0.345
March	33.3	31.6	1.6	0.493
April	33.2	31.5	1.7	0.476
May	33.3	31.8	1.5	0.530

(continued)

TABLE 4.2 (continued)

Outcome	Experimentals	Controls	Difference	p^a
Attended a 2-year college during (%)				
June 1988	1.1	1.5	-0.4	0.557
July	1.6	2.0	-0.4	0.559
August	8.9	7.5	1.3	0.363
September	14.5	13.2	1.2	0.502
October	14.6	13.3	1.3	0.468
November	14.4	13.1	1.3	0.471
December	14.3	12.8	1.5	0.417
January 1989	15.7	14.0	1.8	0.350
February	15.4	14.2	1.2	0.525
March	15.1	13.9	1.2	0.510
April	14.8	13.1	1.7	0.347
May	15.3	12.8	2.5	0.177
Attended a vocational school during (%)				
June 1988	0.8	1.7	-0.9	0.161
July	1.6	2.7	-1.1	0.192
August	2.3	4.2	-1.9*	0.060
September	4.2	7.9	-3.7***	0.006
October	4.3	8.2	-3.9***	0.004
November	4.8	8.2	-3.5**	0.012
December	4.3	7.9	-3.6***	0.008
January 1989	5.4	8.6	-3.2**	0.027
February	5.6	8.4	-2.8*	0.057
March	5.9	8.7	-2.8*	0.060
April	6.4	8.4	-1.9	0.191
May	5.6	8.2	-2.6*	0.071
Sample Size	621	612		

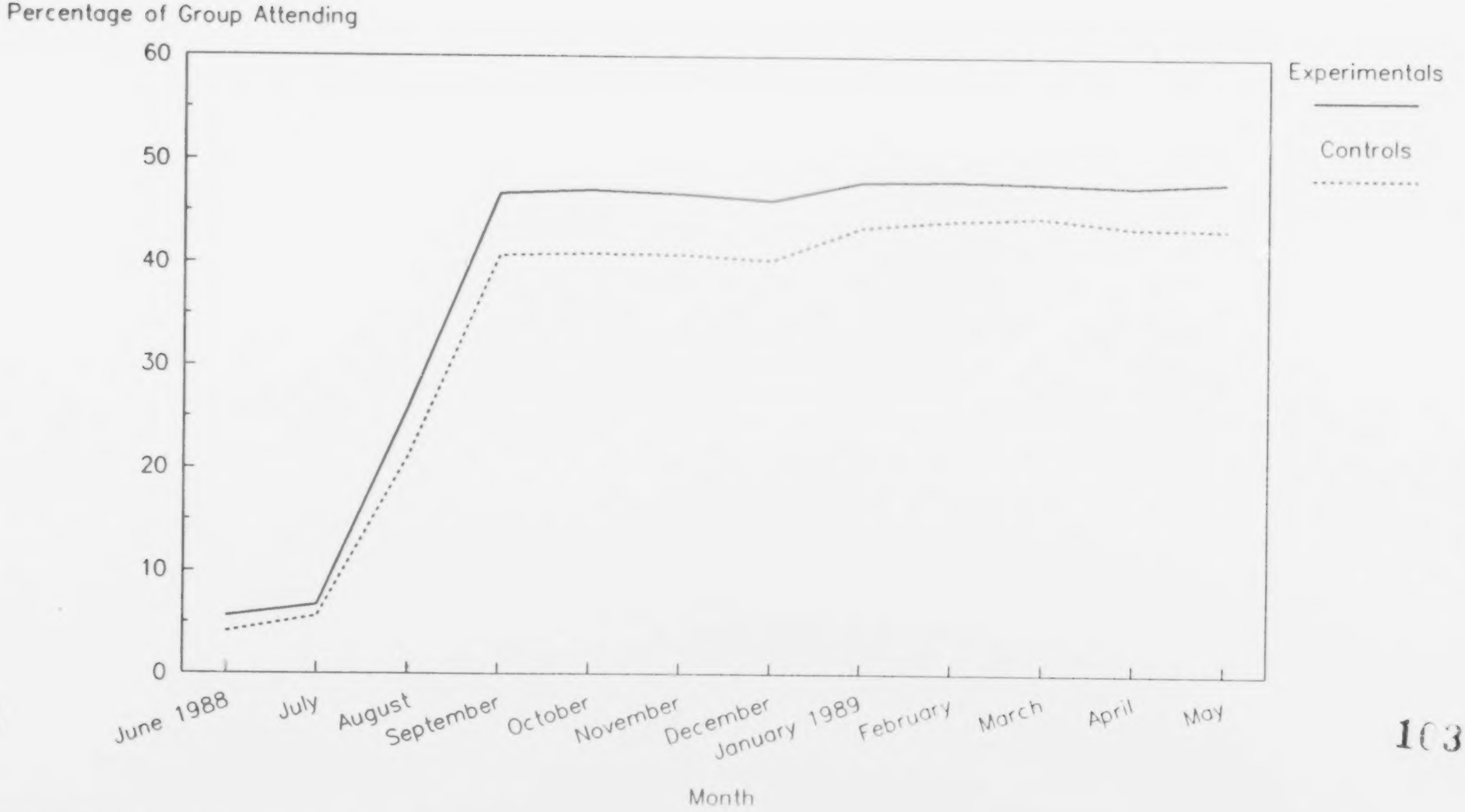
SOURCES: MDRC calculations from Career Beginnings enrollment form and 1989 survey data.

NOTES: Calculations for this table used self-reported data for all 621 experimentals and all 612 controls who responded to both the 1988 and 1989 surveys, including those with values of zero for outcomes and those who were assigned to Career Beginnings but did not participate.

Average experimental and control group outcomes reported here are adjusted means from linear analysis of covariance procedure controlling for 24 kinds of difference in characteristics before random assignment (see Ostle, 1975, p. 461; Cave, 1987). Because of rounding, there may be slight discrepancies in reported sums and differences of these adjusted means.

[a] The column labeled "p" is the statistical significance level of the difference between experimental and control group outcomes: that is, p is the probability that average outcomes are different only because of random error. A two-tailed t-test was applied to differences between average experimental and control group outcomes. Statistical significance levels are indicated as *** = 1 percent or less; ** = 5 percent; * = 10 percent.

FIGURE 4.1
MONTHLY ATTENDANCE AT TWO- OR FOUR-YEAR COLLEGES, BY EXPERIMENTALS AND CONTROLS



SOURCE: Table 4.2.

A second approach to examining retention is adopted in Table 4.3, which reports the proportion of sample members who attended post-secondary institutions of different types in October 1988 and remained continuously enrolled through May 1989. Because the percentages are *based on college and vocational school attenders*, rather than on all experimentals and all controls, the table does not show the impact of assignment to the experimental group, and is not labeled as such.

The table shows that equal percentages of experimentals and controls – about 90 percent for both groups – who were enrolled in two- or four-year colleges in October were still attending in May. In other words, the large majority of individuals who began college in the fall remained there to complete their first year. There were differences, however, according to the type of educational institution attended, with those in four-year colleges more likely to remain enrolled than those in two-year colleges. This finding is likely in part to reflect differences in the characteristics of students attending these institutions.

Lower percentages of sample members (56.5 percent of the experimentals and 65.7 percent of the controls) who attended vocational schools in October remained there continuously through May. Some fall-off may have occurred as sample members completed vocational programs lasting less than eight months; some of these young people, too, may have enrolled in two- or four-year colleges later in the academic year.

IV. Site and Subgroup Variations in College-Going

The primary goal of the Career Beginnings impact evaluation is to estimate overall impacts on college-going, and the sample was large enough for that purpose. Although the sample provided considerably less statistical power for estimating impacts on different subgroups, a thorough analysis was carried out for one important outcome, attendance at a four-year or two-year college during the year after high school graduation.

Table 4.4 displays the results. The table resembles Table 3.11 and, like that table, partitions the sample into subgroups defined by site and by other key characteristics of sample members at baseline.[5]

---

[5] Impacts are examined *within* subgroups while adjusting statistically for measured differences *across* subgroups. These adjustments are important because, as noted in Chapter 2, characteristics of program eligibles varied considerably among the sites, and because, owing to small sample sizes, random assignment did not necessarily ensure completely equivalent experimental and control groups within any given site.

TABLE 4.3

PERCENTAGE OF THOSE ATTENDING AN EDUCATIONAL INSTITUTION IN OCTOBER 1988 WHO WERE STILL ATTENDING IN MAY 1989

Type of Post-Secondary Institution	Sample Size	Experimentals (%)	Controls (%)	Difference	p[a]
4- or 2-year college	543	90.2	90.7	-0.4	0.861
4-year college	383	93.4	94.7	-1.3	0.588
2-year college	172	83.9	82.2	1.7	0.778
Vocational school	77	56.5	65.7	-9.2	0.478

SOURCES: MDRC calculations from Career Beginnings enrollment form and 1989 survey data.

NOTES: Calculations for this table used self-reported data for all 621 experimentals and all 612 controls who responded to both the 1988 and 1989 surveys, including those with values of zero for outcomes and those who were assigned to Career Beginnings but did not participate. Each line of the table used a different sample. In line 1, data were used for sample members attending a four- or two-year college in October 1988; in line 2, for those attending a four-year college in October 1988; in line 3, for those attending a two-year college in October 1988; and in line 4, for those attending a vocational school in October 1988.

Average experimental and control group outcomes reported here are adjusted means from a linear analysis of covariance procedure controlling for 24 kinds of difference in characteristics before random assignment (see Ostle, 1975, p. 461; Cave, 1987). Because of rounding, there may be slight discrepancies in reported sums and differences of these adjusted means.

[a] The column labeled "p" is the statistical significance level of the difference between experimental and control group outcomes: that is, p is the probability that average outcomes are different only because of random error. A two-tailed t-test was applied to differences between average experimental and control group outcomes. Statistical significance levels are indicated as *** = 1 percent or less; ** = 5 percent; * = 10 percent.

TABLE 4.4

IMPACTS ON COLLEGE ATTENDANCE, BY SELECTED BASELINE CHARACTERISTICS

		Ever Attended a 2- or 4-Year College, June 1988-May 1989					
Characteristic and Subgroup	Sample Size	Experimentals (%)	Controls (%)	Subgroup Impact	p[a]	Subgroup Impact Difference[b]	p[a]
Sex						5.9	0.273
Female	791	54.7	47.9	6.8**	0.036	---	---
Male	442	50.2	49.4	0.9	0.843	---	---
Site						---	0.485
The Bronx, New York	170	43.3	45.8	-2.5	0.715	---	---
Gary, Indiana	179	62.9	48.7	14.3**	0.035	---	---
Indianapolis, Indiana	212	37.7	36.5	1.2	0.851	---	---
Jacksonville, Florida	153	58.9	48.4	10.5	0.157	---	---
Rochester, New York	174	53.7	56.7	-3.0	0.666	---	---
Santa Ana, California	162	67.8	61.9	5.9	0.410	---	---
Youngstown, Ohio	183	52.1	44.6	7.5	0.270	---	---
Employed anytime during the year before random assignment						2.2	0.668
Yes	646	55.7	50.0	5.7	0.109	---	---
No	587	50.3	46.8	3.5	0.349	---	---
Recent grade average						0.9	0.857
A or B	595	63.4	58.3	5.2	0.167	---	---
C, D, or F	638	43.6	39.4	4.2	0.243	---	---
Ever a school dropout for a semester or more						8.1	0.739
Yes	14	33.8	21.1	12.7	0.601	---	---
No	1,219	53.4	48.8	4.6*	0.079	---	---
Problems with English and another language is usually spoken at home						8.6	0.528
Yes	46	54.4	41.4	12.9	0.333	---	---
No	1,187	53.1	48.8	4.4*	0.099	---	---
Living with both parents						-1.2	0.819
Yes	528	53.6	49.7	4.0	0.314	---	---
No	705	52.8	47.6	5.2	0.129	---	---

(continued)

TABLE 4.4 (continued)

Characteristic and Subgroup	Sample Size	Ever Attended a 2- or 4-Year College, June 1988-May 1989		Subgroup Impact	p[a]	Subgroup Impact Difference[b]	p[a]
		Experimentals (%)	Controls (%)				
Has own child(ren)						9.1	0.605
Yes	28	49.6	36.1	13.5	0.435	---	---
No	1,205	53.3	48.8	4.5*	0.088	---	---
Ever in a summer work program						-0.9	0.869
Yes	495	48.3	44.2	4.2	0.308	---	---
No	738	56.4	51.4	5.0	0.134	---	---
Employed anytime during the previous school year						-4.2	0.455
Yes	384	47.3	45.5	1.8	0.702	---	---
No	849	55.8	49.9	6.0*	0.056	---	---
Ever expelled or suspended						-4.4	0.512
Yes	227	38.9	37.8	1.1	0.854	---	---
No	1,006	56.4	50.9	5.5*	0.056	---	---
Ethnicity						---	0.413
White, non-Hispanic	114	44.3	46.7	-2.4	0.776	---	---
Black, non-Hispanic	849	53.1	48.1	5.0	0.108	---	---
Hispanic	179	51.3	50.6	0.7	0.913	---	---
Other	91	66.8	49.2	17.6	0.065	---	---
Family receiving cash welfare						-2.7	0.626
Yes	383	51.8	49.0	2.8	0.547	---	---
No	850	53.8	48.3	5.5*	0.078	---	---
Age						-1.1	0.902
18 or older	124	53.0	49.3	3.7	0.649	---	---
17 or under	1,109	53.2	48.4	4.8*	0.081	---	---
Courses mostly college preparatory						1.2	0.832
Yes	449	66.8	61.4	5.4	0.209	---	---
No	784	45.4	41.1	4.3	0.193	---	---
Parent(s) graduated from or attended college						3.4	0.538
Yes	405	59.1	52.1	7.0	0.124	---	---
No	828	50.3	46.8	3.5	0.262	---	---

(continued)

TABLE 4.4 (continued)

Characteristic and Subgroup	Sample Size	Ever Attended a 2- or 4-Year College, June 1988-May 1989 Experimentals (%)	 Controls (%)	Subgroup Impact	p[a]	Subgroup Impact Difference[b]	p[a]
Family receiving Food Stamps						-0.2	0.978
Yes	317	50.5	46.0	4.6	0.373	---	---
No	916	54.1	49.4	4.7	0.118	---	---
Ever in a year-round training program not sponsored by the sample member's high school						9.1	0.340
Yes	100	63.6	50.6	13.1	0.155	---	---
No	1,133	52.3	48.4	3.9	0.144	---	---

SOURCES: MDRC calculations from Career Beginnings enrollment form and 1989 survey data.

NOTES: Calculations for this table used self-reported data for all 621 experimentals and all 612 controls who responded to both the 1988 and 1989 surveys, including those with values of zero for outcomes and those who were assigned to Career Beginnings but did not participate. Subgroup sample sizes for some characteristics may fall short of the total number of sample members because of items missing from data for some survey responders.

Average experimental and control group outcomes reported here are adjusted means from two-way analysis of covariance procedures controlling for up to 23 kinds of difference in characteristics, other than the characteristic used to define subgroups, before random assignment. The two categories used as factors were research assignment and, one at a time, the baseline characteristics indicated (see Ostle, 1975, p. 454). Because of rounding, there may be slight discrepancies in reported sums and differences of these adjusted means.

[a] Two-tailed t-tests were applied to within-subgroup impacts and also to differences between subgroup impacts. For each characteristic with more than two subgroups (site and ethnicity), an F test was applied to the interaction between that characteristic and experimental or control status. The columns labeled "p" are the statistical significance levels of each impact, each difference between impacts, or each F statistic: that is, p is the probability that sample estimates are non-zero only because of random error. Statistical significance levels are indicated as *** = 1 percent or less; ** = 5 percent; * = 10 percent.

[b] For each characteristic that has only two subgroups, the subgroup impact difference is the impact within the first subgroup, less the impact within the second subgroup.

As with Table 3.11, Table 4.4 presents the results of two types of analysis. It reports, first, on whether experimental-control differences are significant *within* a given subgroup. (This difference is shown in the column labeled "Subgroup Impact," and in the column to its right, which indicates the probability that the subgroup impact could have arisen by chance.) Because of the small sizes of these subgroups, only very sizable impacts are likely to prove statistically significant; nonetheless, patterns of impacts are interesting, even when these impacts do not attain statistical significance.

For example, the table points to a good deal of variation in impacts by site. The Career Beginnings program in Gary had an impact on college attendance of 14.3 percentage points, or 29 percent above the control group attendance rate; this was the only site where the impact was statistically significant. Three other programs had impacts larger than the overall sample, but owing to their smaller sample size, none of these impacts was significant. The Jacksonville program had an impact of 10.5 percentage points, while the Youngstown and Santa Ana sites registered impacts of 7.5 percentage points and 5.9 percentage points, respectively. At the other sites, the impact was smaller: 1.2 percentage points in Indianapolis, minus 2.5 percentage points in the Bronx, and minus 3.0 percentage points in Rochester. The p value reported in the final column of the table indicates that there is a 49 percent chance these differences in site impacts could have arisen by chance in drawing a sample of this size from programs with equal impacts.

Site variation in impacts resulted from variations in the rates of college attendance by both experimentals and controls. Among experimentals the percentage attending college ranged from 37.7 percent in Indianapolis to 67.8 percent in Santa Ana. The range in college attendance for controls was only slightly smaller: from 36.5 percent in Indianapolis to 61.9 percent in Santa Ana.

It is striking that the Gary and Jacksonville sites, which were judged to have implemented the program most successfully and which showed the greatest experimental-control differential in terms of service receipt, also registered the strongest impacts on college attendance. Conversely, at the Bronx and Rochester sites, where implementation and service delivery were least successful, experimentals' college attendance did not rise above that of controls.

The table displays other subgroups for whom Career Beginnings produced differences in rates of college-going by experimentals and controls that were statistically significant. The program increased college attendance for women. It also registered positive impacts for those who had never been expelled or suspended, had not been employed during the school year before Career Beginnings began, and did not come from families receiving cash welfare. These data suggest that young people with the greatest educational or economic barriers to college attendance were not especially helped by the program.[6]

However, caution about such a conclusion is indicated by the results of a second kind of analysis used to examine the subgroup issue. This type of analysis reports (in the column labeled "Subgroup Impact Difference" and the probability column immediately following) whether impacts are significantly different for one subgroup of a given characteristic than another – whether, for example, the program proved *more* effective for women than for men, *more* effective for those who had never dropped out or been expelled or suspended than for those who had, and so on. This kind of analysis is particularly important in informing decisions about whether the program should target particular kinds of individuals to achieve maximum results.

The table shows that there were no statistically significant differences among the subgroups for any of the characteristics indicated. While the difference in impacts by sex (an experimental-control difference of 6.8 percentage points for the women and of 0.9 percentage points for the men) is not statistically significant, it is worthy of note. No other subgroup difference appears to be of comparable importance.

Efforts were also made to examine program effectiveness for particular *clusters* of subgroups. (For example, experimental-control differences were measured for young women whose parents had not attended college and whose families were receiving welfare and for young women with a parent who had attended college and whose families were not on welfare.) These subgroup cluster analyses also failed to suggest any particular group which especially benefited from Career Beginnings.

Appendix Table B.1 resembles Table 4.4, but examines subgroup effects on college retention rather than on attendance at any time during the follow-up period. (The outcome examined is attendance at a two- or four-year college during May 1989.) The results correspond in large measure with those reported in the subgroup analysis in Table 4.4, in part, no doubt, because those more likely to remain in college are also more likely to have gone there in the first place. One difference is notable, however: While the experimental-control differential in the percentage ever attending college was marked for women (and nonexistent for men), there were no statistically significant impacts on retention for either sex, and essentially no difference between men and women in attendance during the month of May. This suggests that, while the program helped women get into college, it succeeded less well in keeping them there.

---

[6] However, in some cases (dropouts, students who had problems with English, and students who were parents), disadvantaged subgroups with very small sample sizes showed large – but statistically insignificant – impacts.

V. Fields of Study

The 744 sample members who went on to some form of post-secondary education were asked about their planned course of study, and information was obtained for 619, or 83 percent, of them. (Of course, the students, especially those in four-year colleges, might well change their minds later in their college careers.) About two-thirds of those who continued their educations chose fields that could be expected to offer direct preparation for future jobs. For example, 176 chose business-related courses of study, 56 were pursuing computer/information science courses, 49 were studying engineering, and 66 were in health occupations or health science areas. Just over one-quarter (26.2 percent) chose liberal arts programs.

VI. Short-Term Impacts on Employment

Career Beginnings was intended to help participants enter college and to assist them in getting better jobs than they would otherwise obtain – jobs with career ladders and higher wages. This section examines program impacts on sample members' employment (including employment in the military) within the 12 months after their senior year in high school. Basically, the data confirm that the anticipated short-term trade-off between attending college and working occurred: While experimentals were more likely than youths in the control group to invest in their futures by enrolling in college, they were less likely to be employed, and consequently, as a group, their earnings were lower.

Table 4.5 shows civilian employment rates for both groups during the follow-up period as a whole and during each month. Large majorities in both groups – 79.9 percent of the experimentals and 84.1 percent of the controls – worked during this period; the 4.2 percentage point difference between the groups was statistically significant. The month-by-month

TABLE 4.5

IMPACTS ON EMPLOYMENT

Outcome	Experimentals	Controls	Difference	p^a
Ever employed, June 1988-May 1989 (%)	79.9	84.1	-4.2*	0.054
Number of months employed, June 1988-May 1989	6.20	6.48	-0.28	0.271
Number of weeks employed, June 1988-May 1989	24.4	25.5	-1.1	0.327
Number of hours employed, June 1988-May 1989	775.40	803.13	-27.73	0.488
Employed during (%)				
June 1988	34.6	41.1	-6.5**	0.017
July	41.7	46.7	-5.0*	0.077
August	46.1	50.3	-4.2	0.137
September	46.9	50.1	-3.2	0.252
October	48.9	52.1	-3.2	0.259
November	51.9	54.7	-2.9	0.313
December	55.5	55.7	-0.2	0.940
January 1989	55.9	58.3	-2.4	0.389
February	57.6	57.7	0.0	0.990
March	59.9	58.4	1.5	0.594
April	59.9	59.4	0.5	0.862
May	61.4	63.3	-1.9	0.480
Sample Size	621	612		

SOURCES: MDRC calculations from Career Beginnings enrollment form and 1989 survey data.

NOTES: Calculations for this table used self-reported data for all 621 experimentals and all 612 controls who responded to both the 1988 and 1989 surveys, including those with values of zero for outcomes and those who were assigned to Career Beginnings but did not participate.

Average experimental and control group outcomes reported here are adjusted means from a linear analysis of covariance procedure controlling for 24 kinds of difference in characteristics before random assignment (see Ostle, 1975, p. 461; Cave, 1987). Because of rounding, there may be slight discrepancies in reported sums and differences of these adjusted means.

[a] The column labeled "p" is the statistical significance level of the difference between experimental and control group outcomes: that is, p is the probability that average outcomes are different only because of random error. A two-tailed t-test was applied to differences between average experimental and control group outcomes. Statistical significance levels are indicated as *** = 1 percent or less; ** = 5 percent; * = 10 percent.

employment rates, also shown in Figure 4.2, indicate that this difference was driven by the fact that controls were more likely than experimentals to be employed during the summer and fall after graduation.[7] Employment rates for both groups climbed over time, while the difference between the groups narrowed substantially and was no longer statistically significant by midway through the follow-up period.

Higher rates of employment for controls than for experimentals translated into $216 more in earnings over the follow-up period ($3,750.95 for controls versus $3,534.93 for experimentals), a 6.1 percent difference that was not statistically significant (see Table 4.6). As would be expected, earnings of both experimentals and controls increased over time, as shown in Figure 4.3, as more members of both research groups secured employment. Mirroring the narrowing differential in employment rates between the two groups, the earnings differential also disappeared over time. Experimentals did not find better-paying jobs than controls, at least as indicated by wage level; for both groups, the average wage during the follow-up period was about $4.50 an hour.

Military service was an alternative to college-going and to civilian employment for a relatively small number of teens in both groups: 2.3 percent of the experimentals and 1.9 percent of the controls.

VII. Program Impacts on "Productive Activity"

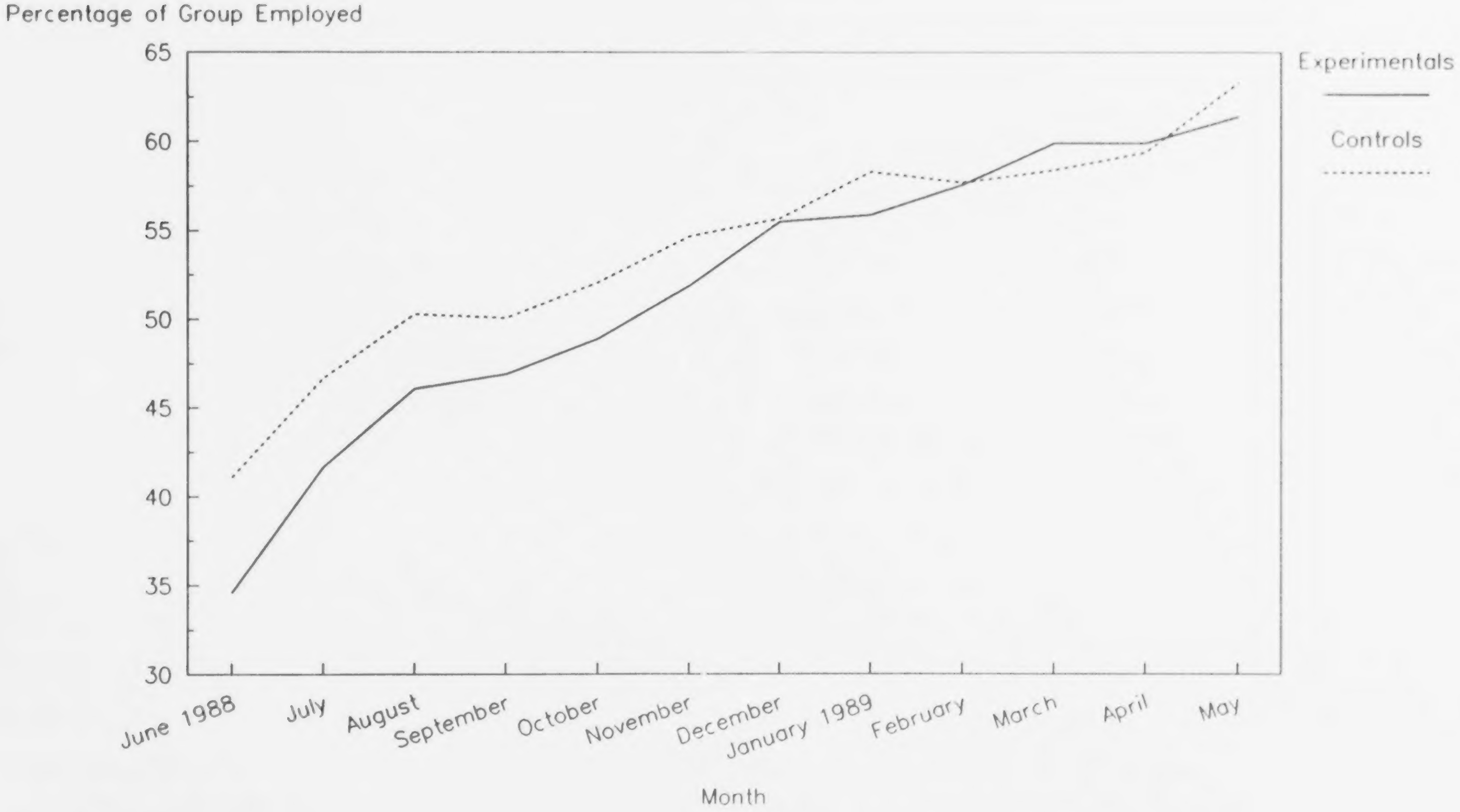
Because a possible trade-off between post-secondary education and work was anticipated, the evaluation also undertook to answer a question that assumed both these activities (along with military service) were worthwhile and then asked: What proportion of experimentals and controls were engaged in at least one of these three kinds of productive activity during the follow-up? Table 4.7 displays the results of this analysis.

The large majority of sample members – 95 percent of experimentals and controls alike – were involved in a productive activity at some point during the follow-up. "Productive activity rates" were similar for the two groups on a month-by-month basis as well. These monthly data, in conjunction with earlier findings, suggest that, as would be expected, employment was the main form of productive activity in the months immediately following high

---

[7] As Table 4.3 indicated, experimentals were significantly more likely than controls to attend college during the fall months.

FIGURE 4.2
MONTHLY EMPLOYMENT RATES
FOR EXPERIMENTALS AND CONTROLS



SOURCE: Table 4.5.

TABLE 4.6

IMPACTS ON EARNINGS

Outcome	Experimentals ($)	Controls ($)	Difference	p[a]
Total earnings, June 1988-May 1989	3,534.93	3,750.95	-216.02	0.292
Earnings during				
June 1988	174.09	202.13	-28.04*	0.088
July	243.80	277.35	-33.55*	0.093
August	258.21	287.73	-29.52	0.146
September	249.72	282.14	-32.42	0.105
October	277.42	312.77	-35.35*	0.093
November	287.72	318.19	-30.47	0.137
December	312.83	331.06	-18.22	0.387
January 1989	323.55	331.78	-8.22	0.698
February	305.13	311.18	-6.05	0.759
March	355.91	357.13	-1.22	0.956
April	359.60	353.93	5.67	0.802
May	386.94	385.57	1.37	0.957
Sample Size	621	612		

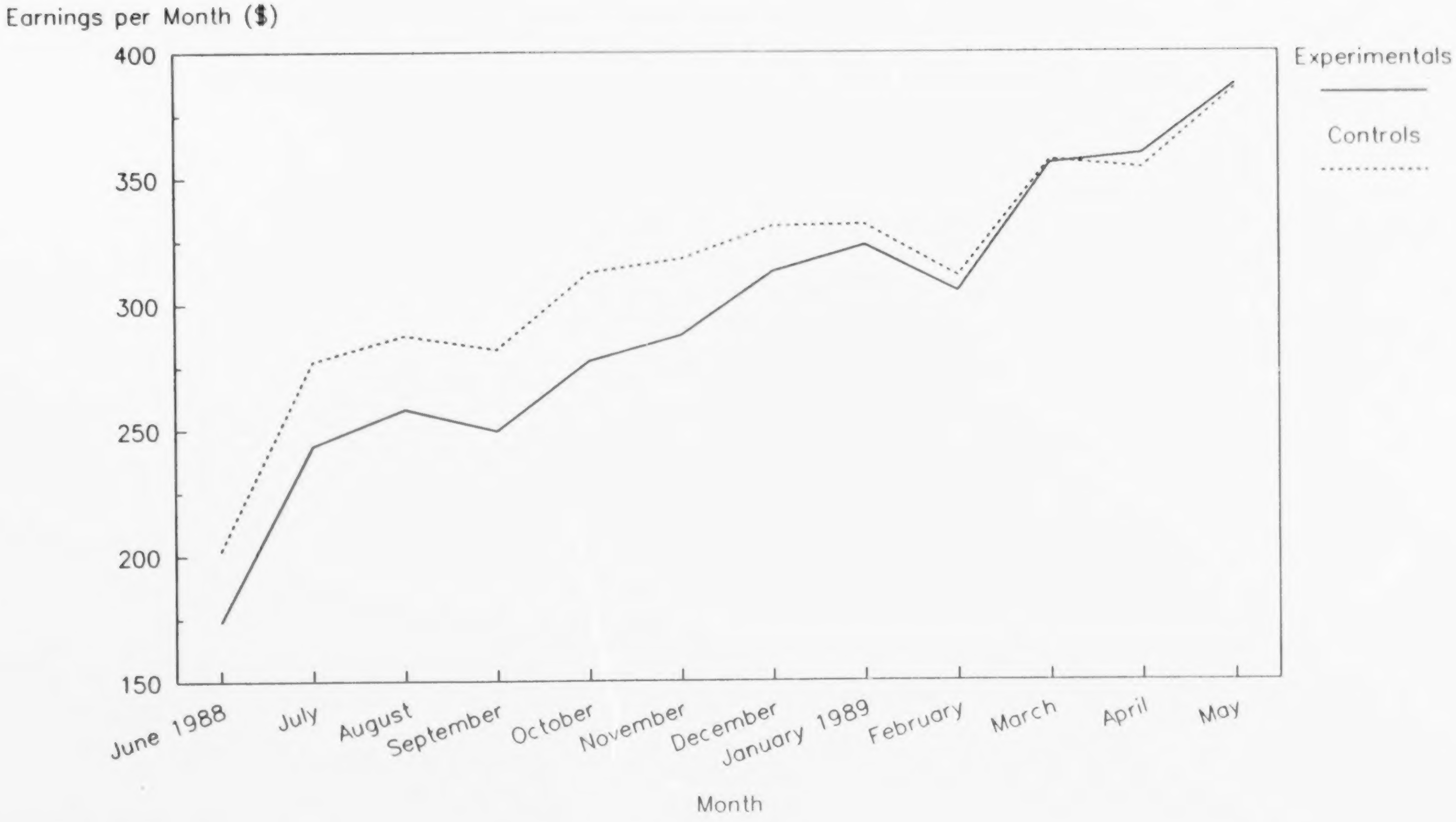
SOURCES: MDRC calculations from Career Beginnings enrollment form and 1989 survey data.

NOTES: Calculations for this table used self-reported data for all 621 experimentals and all 612 controls who responded to both the 1988 and 1989 surveys, including those with values of zero for outcomes and those who were assigned to Career Beginnings but did not participate.

Average experimental and control group outcomes reported here are adjusted means from a linear analysis of covariance procedure controlling for 24 kinds of difference in characteristics before random assignment (see Ostle, 1975, p. 461; Cave, 1987). Because of rounding, there may be slight discrepancies in reported sums and differences of these adjusted means.

[a] The column labeled "p" is the statistical significance level of the difference between experimental and control group outcomes: that is, p is the probability that average outcomes are different only because of random error. A two-tailed t-test was applied to differences between average experimental and control group outcomes. Statistical significance levels are indicated as *** = 1 percent or less; ** = 5 percent; * = 10 percent.

FIGURE 4.3
MONTHLY EARNINGS
FOR EXPERIMENTALS AND CONTROLS



SOURCE: Table 4.6.

TABLE 4.7

IMPACTS ON PRODUCTIVE ACTIVITY

Outcome	Experimentals	Controls	Difference	p[a]
Ever employed, served in the military, or attended a college or post-secondary school, June 1988-May 1989 (%)	95.1	94.7	0.5	0.714
Number of months employed, served in the military, or attended a college or post-secondary school, June 1988-May 1989	9.06	9.04	0.02	0.927
Employed, served in the military, or attended a college or post-secondary school during (%)				
June 1988	40.1	45.4	-5.2*	0.061
July	49.7	52.5	-2.8	0.316
August	65.2	64.8	0.4	0.880
September	78.0	76.7	1.3	0.581
October	79.2	79.0	0.2	0.926
November	81.5	81.0	0.6	0.798
December	82.9	81.7	1.2	0.578
January 1989	84.2	84.0	0.2	0.939
February	85.3	84.7	0.7	0.738
March	86.6	84.7	1.8	0.345
April	87.3	84.5	2.8	0.143
May	85.5	84.8	0.7	0.721
Sample Size	621	612		

SOURCES: MDRC calculations from Career Beginnings enrollment form and 1989 survey data.

NOTES: Calculations for this table used self-reported data for all 621 experimentals and all 612 controls who responded to both the 1988 and 1989 surveys, including those with values of zero for outcomes and those who were assigned to Career Beginnings but did not participate.

Average experimental and control group outcomes reported here are adjusted means from a linear analysis of covariance procedure controlling for 24 kinds of difference in characteristics before random assignment (see Ostle, 1975, p. 461; Cave, 1987). Because of rounding, there may be slight discrepancies in reported sums and differences of these adjusted means.

[a] The column labeled "p" is the statistical significance level of the difference between experimental and control group outcomes: that is, p is the probability that average outcomes are different only because of random error. A two-tailed t-test was applied to differences between average experimental and control group outcomes. Statistical significance levels are indicated as *** = 1 percent or less; ** = 5 percent; * = 10 percent.

school graduation, with college attendance assuming increased importance thereafter. It also appears that a substantial number of sample members combined schooling with at least part-time employment.[8]

VIII. Other Program Impacts

Table 4.8 reports the impacts of Career Beginnings on other outcomes of interest. Program planners and evaluators speculated that participation in a program designed to foster college attendance and employment would induce young people to delay family formation. In fact, control group members were more likely than their experimental group counterparts to have married by the time of the follow-up interview, although marriage rates for both groups were low (2 percent for experimentals and 3.6 percent for controls, a statistically significant difference). There were no statistically significant differences between the groups in the proportions reporting having children of their own or being primarily responsible for child care.

Twenty percent of the experimentals and 15 percent of the controls were living away from home in a college dormitory in February 1989. This difference was statistically significant and reflects in part the fact that experimentals were more likely than controls to be enrolled in college during that month. It may also be that experimentals were more likely than controls to attend colleges outside their home communities, although the survey did not address this issue directly.

IX. Effects for Experimentals Versus Effects for Participants

Data presented in the last chapter (Table 3.2) showed that research status did not correspond in all cases with program participation or nonparticipation. Of the 621 experimentals in the study sample, 20.5 percent told survey interviewers that they had not participated in the program. Of the 612 controls, 69 or 11.3 percent, reported they had participated in the program, although 9 of those 69 then answered "zero" to a subsequent

---

[8] For example, in November 1988, 81.5 percent of the experimentals were engaged in a productive activity (defined as being employed *or* in college or vocational training *or* in the military). Table 4.2 indicates that about one-half attended college or vocational training during November (a figure that may be slightly too high, since it double-counts a handful of students who may have been in both college and vocational school during the month), while according to Table 4.5 about one-half were employed during the month. Since only 82 percent of experimentals were engaged in "productive activity" in that month, many respondents were both in school *and* employed during the month.

TABLE 4.8

IMPACTS ON OTHER OUTCOMES

Outcome	Experimentals (%)	Controls (%)	Difference	p[a]
In May 1989				
Married	2.0	3.6	-1.7*	0.077
Has own child(ren)	13.7	15.4	-1.6	0.363
Primarily responsible for child care	10.1	11.6	-1.5	0.363
In February 1989, living in				
Home of parent or guardian	67.7	68.2	-0.6	0.830
Dormitory	20.3	15.3	5.0**	0.014
Sample Size	621	612		

SOURCES: MDRC calculations from Career Beginnings enrollment form and 1989 survey data.

NOTES: Calculations for this table used self-reported data for all 621 experimentals and all 612 controls who responded to both the 1988 and 1989 surveys, including those with values of zero for outcomes and those who were assigned to Career Beginnings but did not participate.

Average experimental and control group outcomes reported here are adjusted means from linear analysis of covariance procedure controlling for 24 kinds of difference in characteristics before random assignment (see Ostle, 1975, p. 461; Cave, 1987). Because of rounding, there may be slight discrepancies in reported sums and differences of these adjusted means.

[a] The column labeled "p" is the statistical significance level of the difference between experimental and control group outcomes: that is, p is the probability that average outcomes are different only because of random error. A two-tailed t-test was applied to differences between average experimental and control group outcomes. Statistical significance levels are indicated as *** = 1 percent or less; ** = 5 percent; * = 10 percent.

121

question about the number of specific Career Beginnings activities in which they had taken part. Thus, between 9.8 percent and 11.3 percent[9] of controls can be assumed to have participated in the program.

In this section, we look at one impact measure, college attendance, to try to understand the contributions of these four categories of youths (experimentals who participated, experimentals who did not participate, controls who participated, and controls who did not participate) on the impacts, and the possible magnitude of any adjustments that might pertain.

If it is fair to assume that the effect of Career Beginnings on college attendance was zero for those assignees to the program who never participated, then the 4.7 percentage point average impact on college attendance is an average of zero for 20.5 percent of them, and 4.7/0.795 = 5.9 percentage points for those who did participate. Although subject to some question,[10] this adjustment is one that seems empirically correct and is frequently made for analyses such as these.

Adjustments for *controls* who participated in Career Beginnings are more suspect, since, for example, the youths may not have distinguished between the Career Beginnings application process and the receipt of Career Beginnings program services. Thus the *most* optimistic approach would be to assume further that impacts on participating controls were exactly the same as impacts on participating assignees to the program. With that assumption, the 4.7 percentage point average impact of assignment comprises of the difference between the experimental group's participation rate of 0.795 and a participation rate range of 0.098 to 0.113 for the controls. An upper-bound estimate of the impact of participation, given this further assumption, is 6.9 percentage points.[11] The estimate of 6.9 percentage points requires assumptions about both nonparticipants and served controls that are the most favorable to the Career Beginnings program. The assumption on control services is particularly liberal in view of the high proportion of served controls who received only one or two Career Beginnings services. While only about one-quarter (129 of 494) of the experimentals who reported receiving one or more services received only one or two, two-thirds (40 of 60) of the controls who reported receiving one or more services got only one or two. A compromise assumption might be that impacts were the same as impacts for participating experimentals only for those 20 controls who took part in three or more Career Beginnings services. On that basis, the adjusted impact of participating in the program becomes 6.2 percentage points[12].

---

[9] (69 - 9)/612 = 9.8 percent; 69/612 = 11.3 percent.

[10] For example, if a site "channeled" the selected youth into other programs and services as well, there could have been an effect just from being *assigned* to Career Beginnings, even without *participating* in Career Beginnings *per se*.

[11] 4.7/(0.795 - 0.113) = 6.9.

As suggested above, these adjusted estimates are only as good as the assumptions underlying them. If, for example, the effect of the program on participating controls was even weaker than under the second assumption (because they tended to receive fewer services), or if those selected for the program tended to think more highly of themselves as "college material," even without attending any activities, the true impact of participation would be even closer to the impact for all those assigned to the experimental group. The impact of assignment thus is a more conservative estimate of the effect of the program than the impact of participation calculated on any of the assumptions just described.

• • •

Young people who were given the opportunity to participate in Career Beginnings attended college at a higher rate than would otherwise have been the case. They also appeared somewhat more likely to opt for higher levels of education, with some of those who would have attended vocational schools instead going to junior colleges and some of those who would have attended two-year colleges instead selecting four-year institutions.

That the increase in college attendance was not larger than 4.7 percentage points may reflect the fact that, as discussed in the previous chapter, individuals in the control group also received substantial amounts of service. This 4.7 percentage point overall increase is an average of site differences that ranged from -3.0 percentage points (that is, controls were more likely to attend college than experimentals) to 14.3 percentage points. The sites registering the largest impacts were also the most successful in delivering more services to experimentals than they would otherwise have received.

Appendix C presents further findings on the *association* of receipt of services (whether from Career Beginnings or other sources) and college-going. As it makes plain, it may be impossible to accurately measure the *impact* of the receipt of any services on college-going because those participating in services differ from nonparticipants in many unmeasured – and unmeasurable – ways.

---

[12] $4.7/(0.795 - 20/60) = 6.2$

The expectation that experimentals' increased investment in education would be associated with forgone employment and earnings in the short run also was borne out by the survey data, though the differences disappeared midway through the follow-up year.

APPENDIX A: SUPPLEMENT TO CHAPTER 2

METHODOLOGICAL ISSUES IN THE IMPACT ANALYSIS OF CAREER BEGINNINGS

As outlined in Chapter 2, random assignment is used to avoid systematic differences in pre-program characteristics of experimental and control groups. This appendix compares the characteristics of experimentals and controls for the entire sample and for individual sites. It also compares the characteristics of those who responded to follow-up surveys with those who did not respond so that it can be seen whether results for responders can be generalized to the entire sample.

I. Selection Bias

Did random assignment succeed in creating a group of Career Beginnings controls who had the same pre-program characteristics as Career Beginnings experimentals? Table A.1 presents linear regression results measuring the extent of selection bias for several different samples, including all 1,574 persons who filled out enrollment forms as well as the responders to both surveys, who form the impact analysis sample. In this regression, the dependent variable was unity for each experimental and zero for each control. Individual characteristics and the site at which the person applied for the program were the independent variables.

The column labeled "Full Sample" in Table A.1 shows the same slight differences in individual characteristics as Table 2.1 in Chapter 2, which presented one-at-a-time average characteristics for experimentals, controls, and both groups together. The final entry in the column, the p value of the F statistic, indicates that there is a 45 percent probability that the overall measured characteristics were the same for the experimentals and controls in the full sample – the 1,574 persons who filled out an intake form.

The impact results presented in this report are based on the 1,233 persons who responded to both follow-up surveys. The p value of the F statistic, presented at the bottom of the right column of Table A.1, indicates that there is a 73 percent probability that the overall measured characteristics were the same for experimentals and controls.

Tables A.2 through A.8 compare experimentals and controls within each site. As would be expected with small sample sizes, there were differences in the two groups within a site.

II. Nonresponse Bias

Were those persons who responded to both the one-year and two-year follow-up surveys representative of the full sample of all persons randomly assigned? A high degree of mobility among disadvantaged youths makes it difficult for survey interviewers to locate all of them a year or two after they have become part of a study. Of the 1,574 people in the full sample, 1,463 responded to the first-year survey, 1,277 responded to the second-year survey, and 1,233 responded to both surveys. Overall, 78.3 percent of the sample responded to both surveys; for experimentals the response rate was 77.7 percent, while for controls it was 79.0 percent.

Table A.9 presents linear regression results measuring the extent to which average characteristics at random assignment for survey responders differed from those of nonresponders. The middle column in the table is most important, since it compares those who responded to both surveys (and were thus part of the impact sample) with those who did not. Since the final entry in this column, the p value of the F statistic, is zero to three decimal places, there is strong evidence of systematic differences between those who were in the impact sample and those who were not. Respondents to both surveys were more likely to be female, living with both parents, not parents themselves, and taking mostly college preparatory courses. They were also less likely to have been employed during the previous school year or to have been expelled or suspended. The response rate at Jacksonville was also significantly lower than at other sites, even after taking into account differences in individual characteristics. However, the proportion of experimentals was not significantly different between those who responded to both surveys and nonresponders to one or both surveys.

These findings imply that the program impact results for responders to both surveys cannot be easily generalized to the full sample. However, since responders to both surveys constituted such a high percentage of all Career Beginnings youths, the findings are representative of a broad group of the sample.

TABLE A.1

ESTIMATED REGRESSION COEFFICIENTS FOR PROBABILITY OF ASSIGNMENT TO EXPERIMENTAL GROUP

	Sample			
Regressor or Statistic	Full Sample	1989 Survey Responders	1988 Survey Responders	Responders to Both Surveys
Constant	0.508***	0.502***	0.507***	0.504***
Male	-0.041	-0.049	-0.032	-0.045
Site				
The Bronx, New York	0.030	-0.014	0.022	-0.017
Gary, Indiana	0.027	0.004	0.014	0.002
Indianapolis, Indiana	----	----	----	----
Jacksonville, Florida	0.075	0.029	0.069	0.033
Rochester, New York	0.018	-0.026	0.008	-0.040
Santa Ana, California	0.024	0.035	0.017	0.030
Youngstown, Ohio	0.037	0.002	0.021	-0.000
Employed anytime during the year before random assignment	0.034	0.040	0.022	0.033
Recent grade average C, D, or F	0.009	0.011	0.009	0.007
Ever a school dropout for a semester or more	-0.032	-0.025	0.045	0.008
Problems with English and another language is usually spoken at home	-0.015	-0.003	-0.032	-0.013
Living with both parents	0.014	0.009	0.020	0.013
Has own child(ren)	-0.082	-0.113	-0.061	-0.094
Ever in a summer work program	-0.018	-0.021	-0.022	-0.021
Employed anytime during the previous school year	0.017	0.005	0.012	0.005
Ever expelled or suspended	-0.003	0.006	0.015	0.019

(continued)

TABLE A.1 (continued)

	Sample			
Regressor or Statistic	Full Sample	1989 Survey Responders	1988 Survey Responders	Responders to Both Surveys
Ethnicity				
White, non-Hispanic	-0.086*	-0.087	-0.098*	-0.097*
Hispanic	-0.065	-0.046	-0.067	-0.058
Black or other	----	----	----	----
Family receiving cash welfare	0.021	0.007	0.019	0.007
Age 18 or older	-0.012	-0.021	-0.024	-0.030
Courses mostly college preparatory	-0.030	-0.044	-0.012	-0.039
Parent(s) graduated from or attended college	-0.065**	-0.040	-0.072**	-0.041
Family receiving Food Stamps	-0.037	-0.043	-0.024	-0.035
Ever in a year-round training program not sponsored by the sample member's high school	-0.095**	-0.085	-0.113**	-0.088*
Number of observations	1574	1277	1463	1233
Number of experimentals	799	641	742	621
Number of controls	775	636	721	612
Degrees of freedom for error	1549	1252	1438	1208
Error mean square	0.250	0.251	0.250	0.251
R square	0.015	0.015	0.016	0.016
Mean of dependent variable	0.508	0.502	0.507	0.504
F statistic	1.008	0.799	0.974	0.808
P value of F statistic	0.452	0.741	0.498	0.729

SOURCE: MDRC calculations from Career Beginnings enrollment form data.

NOTES: The dependent variable in each regression equation was unity for each experimental and zero for each control. Each characteristic on the right-hand side of each equation was measured as a deviation from its mean.

A two-tailed t-test was applied to each coefficient estimate. Statistical significance levels are indicated as *** = 1 percent or less; ** = 5 percent; * = 10 percent.

The p value of the F statistic is the probability of obtaining these coefficient estimates if the true chance of becoming an experimental did not vary with any characteristic. Thus, the closer the p value is to unity, the more successful was random assignment in equating average characteristics of experimentals and controls.

TABLE A.2

CHARACTERISTICS AT SAMPLE ENTRY, BY RESEARCH GROUP: THE BRONX, NEW YORK

Characteristic and Subgroup	Sample Size	Experimentals (%)	Controls (%)	Both Groups (%)	p[a]
Sex					
Female	118	73.2	65.9	69.4	0.390
Male	52	26.8	34.1	30.6	
Employed anytime during the year before random assignment					
Yes	70	39.0	43.2	41.2	0.693
No	100	61.0	56.8	58.8	
Recent grade average					
A or A-	18	14.8	6.9	10.7*	0.071
B+	55	29.6	35.6	32.7	
B or B-	53	27.2	35.6	31.5	
C+	31	24.7	12.6	18.5	
C or C-	5	3.7	2.3	3.0	
D+	1	0.0	1.1	0.6	
D or D-	2	0.0	2.3	1.2	
F	3	0.0	3.4	1.8	
Ever a school dropout for a semester or more					
Yes	4	1.2	3.4	2.4	0.664
No	166	98.8	96.6	97.6	
Problems with English and another language is usually spoken at home					
Yes	1	0.0	1.1	0.6	1.000
No	169	100.0	98.9	99.4	
Living with both parents					
Yes	54	30.5	33.0	31.8	0.857
No	116	69.5	67.0	68.2	
Has own child(ren)					
Yes	1	0.0	1.1	0.6	1.000
No	169	100.0	98.9	99.4	
Ever in a summer work program					
Yes	49	29.3	28.4	28.8	1.000
No	121	70.7	71.6	71.2	

(continued)

TABLE A.2 (continued)

Characteristic and Subgroup	Sample Size	Experimentals (%)	Controls (%)	Both Groups (%)	p[a]
Employed anytime during the previous school year					
Yes	35	19.5	21.6	20.6	0.885
No	135	80.5	78.4	79.4	
Ever expelled or suspended					
Yes	7	2.4	5.7	4.1	0.498
No	163	97.6	94.3	95.9	
Ethnicity					
White, non-Hispanic	6	4.9	2.3	3.5	0.215
Black, non-Hispanic	93	58.5	51.1	54.7	
Hispanic	67	32.9	45.5	39.4	
American Indian	1	0.0	1.1	0.6	
Asian or Pacific Islander	2	2.4	0.0	1.2	
Other	1	1.2	0.0	0.6	
Family receiving cash welfare					
Yes	46	29.3	25.0	27.1	0.650
No	124	70.7	75.0	72.9	
Age 18 or older					
Yes	13	3.4	12.2	7.6*	0.062
No	157	96.6	87.8	92.4	
Courses					
General	74	42.3	50.6	46.5	0.299
College preparatory	24	11.5	18.5	15.1	
Commercial or business	36	25.6	19.8	22.6	
Vocational or technical	23	19.2	9.9	14.5	
Other	2	1.3	1.2	1.3	
Parent(s) graduated from or attended college					
Yes	60	36.6	34.1	35.3	0.858
No	110	63.4	65.9	64.7	
Family receiving Food Stamps					
Yes	42	25.6	23.9	24.7	0.932
No	128	74.4	76.1	75.3	
Ever in a year-round training program not sponsored by the sample member's high school					
Yes	13	7.3	8.0	7.6	1.000
No	157	92.7	92.0	92.4	
Sample Size	170	82	88		

(continued)

TABLE A.2 (continued)

SOURCE: MDRC calculations from Career Beginnings enrollment form data.

NOTES: Calculations for this table used self-reported data for all sample members in the site who responded to both the 1988 and 1989 surveys. Subgroup sample sizes for some characteristics may fall short of the total number of sample members because of items missing from data for some survey responders.

Because of rounding, distributions may not total exactly 100.0 percent.

[a] The column labeled "p" is the statistical significance level of the difference between the distributions of characteristics for the experimental and control groups: that is, p is the probability that distributions are different only because of random error. A dash indicates that no p value was calculated since all persons had the same response to this question. A Pearson chi-square test was used to test the hypothesis of equal distributions. Statistical significance levels are indicated as *** = 1 percent or less; ** = 5 percent; * = 10 percent.

TABLE A.3

CHARACTERISTICS AT SAMPLE ENTRY, BY RESEARCH GROUP: GARY, INDIANA

Characteristic and Subgroup	Sample Size	Experimentals (%)	Controls (%)	Both Groups (%)	p^a
Sex					
Female	111	65.6	58.4	62.0	0.407
Male	68	34.4	41.6	38.0	
Employed anytime during the year before random assignment					
Yes	64	34.4	37.1	35.8	0.832
No	115	65.6	62.9	64.2	
Recent grade average					
A or A-	8	3.3	5.6	4.5*	0.061
B+	19	5.6	15.7	10.6	
B or B-	52	33.3	24.7	29.1	
C+	44	24.4	24.7	24.6	
C or C-	50	26.7	29.2	27.9	
D+	4	4.4	0.0	2.2	
D or D-	2	2.2	0.0	1.1	
F	0	0.0	0.0	0.0	
Ever a school dropout for a semester or more					
Yes	2	0.0	2.2	1.1	0.472
No	177	100.0	97.8	98.9	
Problems with English and another language is usually spoken at home					
Yes	0	0.0	0.0	0.0	----
No	179	100.0	100.0	100.0	
Living with both parents					
Yes	74	42.2	40.4	41.3	0.929
No	105	57.8	59.6	58.7	
Has own child(ren)					
Yes	3	1.1	2.2	1.7	0.992
No	176	98.9	97.8	98.3	
Ever in a summer work program					
Yes	90	48.9	51.7	50.3	0.822
No	89	51.1	48.3	49.7	

(continued)

TABLE A.3 (continued)

Characteristic and Subgroup	Sample Size	Experimentals (%)	Controls (%)	Both Groups (%)	p^a
Employed anytime during the previous school year					
Yes	25	11.1	16.9	14.0	0.372
No	154	88.9	83.1	86.0	
Ever expelled or suspended					
Yes	28	16.7	14.3	15.6	0.862
No	151	83.3	85.7	84.4	
Ethnicity					
White, non-Hispanic	3	3.3	0.0	1.7*	0.069
Black, non-Hispanic	172	93.3	98.9	96.1	
Hispanic	3	3.3	0.0	1.7	
American Indian	1	0.0	1.1	0.6	
Asian or Pacific Islander	0	0.0	0.0	0.0	
Other	0	0.0	0.0	0.0	
Family receiving cash welfare					
Yes	66	40.0	33.7	36.9	0.473
No	113	60.0	66.3	63.1	
Age 18 or older					
Yes	19	11.1	10.1	10.6	1.000
No	160	88.9	89.9	89.4	
Courses					
General	39	29.5	15.1	22.4	0.164
College preparatory	86	44.3	54.7	49.4	
Commercial or business	23	13.6	12.8	13.2	
Vocational or technical	23	10.2	16.3	13.2	
Other	3	2.3	1.2	1.7	
Parent(s) graduated from or attended college					
Yes	77	40.0	46.1	43.0	0.504
No	102	60.0	53.9	57.0	
Family receiving Food Stamps					
Yes	65	37.8	34.8	36.3	0.799
No	114	62.2	65.2	63.7	
Ever in a year-round training program not sponsored by the sample member's high school					
Yes	6	3.3	3.4	3.4	1.000
No	173	96.7	96.6	96.6	
Sample Size	179	90	89		

SOURCE AND NOTES: See Table A.2.

TABLE A.4

CHARACTERISTICS AT SAMPLE ENTRY, BY RESEARCH GROUP: INDIANAPOLIS, INDIANA

Characteristic and Subgroup	Sample Size	Experimentals (%)	Controls (%)	Both Groups (%)	p[a]
Sex					
Female	144	66.1	70.0	67.9	0.642
Male	68	33.9	30.0	32.1	
Employed anytime during the year before random assignment					
Yes	185	87.5	87.0	87.3	1.000
No	27	12.5	13.0	12.7	
Recent grade average					
A or A-	6	3.6	2.0	2.8	0.594
B+	18	8.0	9.0	8.5	
B or B-	47	25.0	19.0	22.2	
C+	48	24.1	21.0	22.6	
C or C-	78	34.8	39.0	36.8	
D+	8	1.8	6.0	3.8	
D or D-	7	2.7	4.0	3.3	
F	0	0.0	0.0	0.0	
Ever a school dropout for a semester or more					
Yes	6	3.6	2.0	2.8	0.784
No	206	96.4	98.0	97.2	
Problems with English and another language is usually spoken at home					
Yes	0	0.0	0.0	0.0	----
No	212	100.0	100.0	100.0	
Living with both parents					
Yes	56	28.6	24.0	26.4	0.550
No	156	71.4	76.0	73.6	
Has own child(ren)					
Yes	9	3.6	5.0	4.2	0.862
No	203	96.4	95.0	95.8	
Ever in a summer work program					
Yes	199	92.0	96.0	93.9	0.349
No	13	8.0	4.0	6.1	

(continued)

TABLE A.4 (continued)

Characteristic and Subgroup	Sample Size	Experimentals (%)	Controls (%)	Both Groups (%)	p^a
Employed anytime during the previous school year					
Yes	80	39.3	36.0	37.7	0.726
No	132	60.7	64.0	62.3	
Ever expelled or suspended					
Yes	67	28.6	35.0	31.6	0.391
No	145	71.4	65.0	68.4	
Ethnicity					
White, non-Hispanic	6	3.6	2.0	2.8	0.309
Black, non-Hispanic	203	95.5	96.0	95.8	
Hispanic	2	0.0	2.0	0.9	
American Indian	0	0.0	0.0	0.0	
Asian or Pacific Islander	1	0.9	0.0	0.5	
Other	0	0.0	0.0	0.0	
Family receiving cash welfare					
Yes	72	32.1	36.0	34.0	0.655
No	140	67.9	64.0	66.0	
Age 18 or older					
Yes	10	1.8	8.0	4.7*	0.071
No	202	98.2	92.0	95.3	
Courses					
General	101	55.0	42.3	49.0	0.404
College preparatory	56	23.9	30.9	27.2	
Commercial or business	20	7.3	12.4	9.7	
Vocational or technical	27	12.8	13.4	13.1	
Other	2	0.9	1.0	1.0	
Parent(s) graduated from or attended college					
Yes	47	20.5	24.0	22.2	0.660
No	165	79.5	76.0	77.8	
Family receiving Food Stamps					
Yes	72	33.0	35.0	34.0	0.876
No	140	67.0	65.0	66.0	
Ever in a year-round training program not sponsored by the sample member's high school					
Yes	14	7.1	6.0	6.6	0.954
No	198	92.9	94.0	93.4	
Sample Size	212	112	100		

SOURCE AND NOTES: See Table A.2.

TABLE A.5

CHARACTERISTICS AT SAMPLE ENTRY, BY RESEARCH GROUP: JACKSONVILLE, FLORIDA

Characteristic and Subgroup	Sample Size	Experimentals (%)	Controls (%)	Both Groups (%)	p[a]
Sex					
Female	109	71.4	71.0	71.2	1.000
Male	44	28.6	29.0	28.8	
Employed anytime during the year before random assignment					
Yes	51	39.3	26.1	33.3	0.121
No	102	60.7	73.9	66.7	
Recent grade average					
A or A-	9	7.1	4.3	5.9	0.267
B+	16	7.1	14.5	10.5	
B or B-	45	26.2	33.3	29.4	
C+	36	21.4	26.1	23.5	
C or C-	42	33.3	20.3	27.5	
D+	2	2.4	0.0	1.3	
D or D-	3	2.4	1.4	2.0	
F	0	0.0	0.0	0.0	
Ever a school dropout for a semester or more					
Yes	1	1.2	0.0	0.7	1.000
No	152	98.8	100.0	99.3	
Problems with English and another language is usually spoken at home					
Yes	1	1.2	0.0	0.7	1.000
No	152	98.8	100.0	99.3	
Living with both parents					
Yes	57	38.1	36.2	37.3	0.945
No	96	61.9	63.8	62.7	
Has own child(ren)					
Yes	5	4.8	1.4	3.3	0.490
No	148	95.2	98.6	96.7	
Ever in a summer work program					
Yes	48	31.0	31.9	31.4	1.000
No	105	69.0	68.1	68.6	

(continued)

TABLE A.5 (continued)

Characteristic and Subgroup	Sample Size	Experimentals (%)	Controls (%)	Both Groups (%)	p^a
Employed anytime during the previous school year					
Yes	40	26.2	26.1	26.1	1.000
No	113	73.8	73.9	73.9	
Ever expelled or suspended					
Yes	29	25.0	11.6	19.0*	0.058
No	124	75.0	88.4	81.0	
Ethnicity					
White, non-Hispanic	12	3.6	13.0	7.8**	0.049
Black, non-Hispanic	140	96.4	85.5	91.5	
Hispanic	0	0.0	0.0	0.0	
American Indian	0	0.0	0.0	0.0	
Asian or Pacific Islander	1	0.0	1.4	0.7	
Other	0	0.0	0.0	0.0	
Family receiving cash welfare					
Yes	22	16.7	11.6	14.4	0.510
No	131	83.3	88.4	85.6	
Age 18 or older					
Yes	9	2.4	10.1	5.9*	0.092
No	144	97.6	89.9	94.1	
Courses					
General	83	63.4	45.6	55.3	0.238
College preparatory	52	28.0	42.6	34.7	
Commercial or business	3	2.4	1.5	2.0	
Vocational or technical	9	4.9	7.4	6.0	
Other	3	1.2	2.9	2.0	
Parent(s) graduated from or attended college					
Yes	63	34.5	49.3	41.2*	0.093
No	90	65.5	50.7	58.8	
Family receiving Food Stamps					
Yes	13	8.3	8.7	8.5	1.000
No	140	91.7	91.3	91.5	
Ever in a year-round training program not sponsored by the sample member's high school					
Yes	9	4.8	7.2	5.9	0.761
No	144	95.2	92.8	94.1	
Sample Size	153	84	69		

SOURCE AND NOTES: See Table A.2.

TABLE A.6

CHARACTERISTICS AT SAMPLE ENTRY, BY RESEARCH GROUP: ROCHESTER, NEW YORK

Characteristic and Subgroup	Sample Size	Experimentals (%)	Controls (%)	Both Groups (%)	p[a]
Sex					
Female	100	55.6	59.1	57.5	0.747
Male	74	44.4	40.9	42.5	
Employed anytime during the year before random assignment					
Yes	100	58.0	57.0	57.5	1.000
No	74	42.0	43.0	42.5	
Recent grade average					
A or A-	1	1.2	0.0	0.6	0.719
B+	17	7.4	11.8	9.8	
B or B-	34	17.3	21.5	19.5	
C+	55	35.8	28.0	31.6	
C or C-	52	28.4	31.2	29.9	
D+	9	6.2	4.3	5.2	
D or D-	6	3.7	3.2	3.4	
F	0	0.0	0.0	0.0	
Ever a school dropout for a semester or more					
Yes	0	0.0	0.0	0.0	----
No	174	100.0	100.0	100.0	
Problems with English and another language is usually spoken at home					
Yes	3	2.5	1.1	1.7	0.904
No	171	97.5	98.9	98.3	
Living with both parents					
Yes	85	51.9	46.2	48.9	0.557
No	89	48.1	53.8	51.1	
Has own child(ren)					
Yes	3	0.0	3.2	1.7	0.295
No	171	100.0	96.8	98.3	
Ever in a summer work program					
Yes	54	34.6	28.0	31.0	0.438
No	120	65.4	72.0	69.0	

(continued)

TABLE A.6 (continued)

Characteristic and Subgroup	Sample Size	Experimentals (%)	Controls (%)	Both Groups (%)	p[a]
Employed anytime during the previous school year					
Yes	81	43.2	49.5	46.6	0.501
No	93	56.8	50.5	53.4	
Ever expelled or suspended					
Yes	38	23.5	20.4	21.8	0.766
No	136	76.5	79.6	78.2	
Ethnicity					
White, non-Hispanic	29	13.6	19.4	16.7	0.693
Black, non-Hispanic	117	67.9	66.7	67.2	
Hispanic	24	16.0	11.8	13.8	
American Indian	0	0.0	0.0	0.0	
Asian or Pacific Islander	4	2.5	2.2	2.3	
Other	0	0.0	0.0	0.0	
Family receiving cash welfare					
Yes	47	29.6	24.7	27.0	0.579
No	127	70.4	75.3	73.0	
Age 18 or older					
Yes	27	18.5	12.9	15.5	0.418
No	147	81.5	87.1	84.5	
Courses					
General	84	50.6	48.9	49.7*	0.058
College preparatory	41	19.5	28.3	24.3	
Commercial or business	16	7.8	10.9	9.5	
Vocational or technical	22	14.3	12.0	13.0	
Other	6	7.8	0.0	3.6	
Parent(s) graduated from or attended college					
Yes	53	21.0	38.7	30.5**	0.018
No	121	79.0	61.3	69.5	
Family receiving Food Stamps					
Yes	32	23.5	14.0	18.4	0.158
No	142	76.5	86.0	81.6	
Ever in a year-round training program not sponsored by the sample member's high school					
Yes	20	8.6	14.0	11.5	0.388
No	154	91.4	86.0	88.5	
Sample Size	174	81	93		

SOURCE AND NOTES: See Table A.2.

TABLE A.7

CHARACTERISTICS AT SAMPLE ENTRY, BY RESEARCH GROUP: SANTA ANA, CALIFORNIA

Characteristic and Subgroup	Sample Size	Experimentals (%)	Controls (%)	Both Groups (%)	p^a
Sex					
Female	101	63.1	61.5	62.3	0.966
Male	61	36.9	38.5	37.7	
Employed anytime during the year before random assignment					
Yes	72	44.0	44.9	44.4	1.000
No	90	56.0	55.1	55.6	
Recent grade average					
A or A-	18	10.7	11.7	11.2	0.666
B+	28	16.7	18.2	17.4	
B or B-	55	33.3	35.1	34.2	
C+	20	13.1	11.7	12.4	
C or C-	33	20.2	20.8	20.5	
D+	4	4.8	0.0	2.5	
D or D-	2	1.2	1.3	1.2	
F	1	0.0	1.3	0.6	
Ever a school dropout for a semester or more					
Yes	0	0.0	0.0	0.0	----
No	162	100.0	100.0	100.0	
Problems with English and another language is usually spoken at home					
Yes	41	23.8	26.9	25.3	0.784
No	121	76.2	73.1	74.7	
Living with both parents					
Yes	108	65.5	67.9	66.7	0.868
No	54	34.5	32.1	33.3	
Has own child(ren)					
Yes	1	0.0	1.3	0.6	0.970
No	161	100.0	98.7	99.4	
Ever in a summer work program					
Yes	40	23.8	25.6	24.7	0.930
No	122	76.2	74.4	75.3	

(continued)

TABLE A.7 (continued)

Characteristic and Subgroup	Sample Size	Experimentals (%)	Controls (%)	Both Groups (%)	p^a
Employed anytime during the previous school year					
Yes	53	36.9	28.2	32.7	0.312
No	109	63.1	71.8	67.3	
Ever expelled or suspended					
Yes	4	3.6	1.3	2.5	0.666
No	158	96.4	98.7	97.5	
Ethnicity					
White, non-Hispanic	3	2.4	1.3	1.9	0.954
Black, non-Hispanic	9	6.0	5.1	5.6	
Hispanic	74	45.2	46.2	45.7	
American Indian	0	0.0	0.0	0.0	
Asian or Pacific Islander	76	46.4	47.4	46.9	
Other	0	0.0	0.0	0.0	
Family receiving cash welfare					
Yes	56	29.8	39.7	34.6	0.242
No	106	70.2	60.3	65.4	
Age 18 or older					
Yes	34	17.9	24.4	21.0	0.411
No	128	82.1	75.6	79.0	
Courses					
General	99	59.5	62.8	61.1	0.585
College preparatory	61	38.1	37.2	37.7	
Commercial or business	0	0.0	0.0	0.0	
Vocational or technical	1	1.2	0.0	0.6	
Other	1	1.2	0.0	0.6	
Parent(s) graduated from or attended college					
Yes	32	20.2	19.2	19.8	1.000
No	130	79.8	80.8	80.2	
Family receiving Food Stamps					
Yes	43	21.4	32.1	26.5	0.176
No	119	78.6	67.9	73.5	
Ever in a year-round training program not sponsored by the sample member's high school					
Yes	19	9.5	14.1	11.7	0.509
No	143	90.5	85.9	88.3	
Sample Size	162	84	78		

SOURCE AND NOTES: See Table A.2.

TABLE A.8

CHARACTERISTICS AT SAMPLE ENTRY, BY RESEARCH GROUP: YOUNGSTOWN, OHIO

Characteristic and Subgroup	Sample Size	Experimentals (%)	Controls (%)	Both Groups (%)	p[a]
Sex					
Female	108	69.3	49.5	59.0***	0.010
Male	75	30.7	50.5	41.0	
Employed anytime during the year before random assignment					
Yes	104	61.4	52.6	56.8	0.297
No	79	38.6	47.4	43.2	
Recent grade average					
A or A-	16	8.0	9.5	8.8	0.205
B+	30	16.1	16.8	16.5	
B or B-	46	33.3	17.9	25.3	
C+	45	23.0	26.3	24.7	
C or C-	38	18.4	23.2	20.9	
D+	5	1.1	4.2	2.7	
D or D-	2	0.0	2.1	1.1	
F	0	0.0	0.0	0.0	
Ever a school dropout for a semester or more					
Yes	1	1.1	0.0	0.5	0.969
No	182	98.9	100.0	99.5	
Problems with English and another language is usually spoken at home					
Yes	0	0.0	0.0	0.0	----
No	183	100.0	100.0	100.0	
Living with both parents					
Yes	94	51.1	51.6	51.4	1.000
No	89	48.9	48.4	48.6	
Has own child(ren)					
Yes	6	3.4	3.2	3.3	1.000
No	177	96.6	96.8	96.7	
Ever in a summer work program					
Yes	15	6.8	9.5	8.2	0.701
No	168	93.2	90.5	91.8	

(continued)

TABLE A.8 (continued)

Characteristic and Subgroup	Sample Size	Experimentals (%)	Controls (%)	Both Groups (%)	p^a
Employed anytime during the previous school year					
Yes	70	43.2	33.7	38.3	0.243
No	113	56.8	66.3	61.7	
Ever expelled or suspended					
Yes	54	30.7	28.4	29.5	0.863
No	129	69.3	71.6	70.5	
Ethnicity					
White, non-Hispanic	55	25.0	34.7	30.1	0.531
Black, non-Hispanic	115	67.0	58.9	62.8	
Hispanic	9	4.5	5.3	4.9	
American Indian	1	1.1	0.0	0.5	
Asian or Pacific Islander	2	1.1	1.1	1.1	
Other	1	1.1	0.0	0.5	
Family receiving cash welfare					
Yes	74	36.4	44.2	40.4	0.352
No	109	63.6	55.8	59.6	
Age 18 or older					
Yes	12	4.5	8.4	6.6	0.448
No	171	95.5	91.6	93.4	
Courses					
General	18	3.4	16.1	9.9**	0.015
College preparatory	125	79.5	59.1	69.1	
Commercial or business	8	4.5	4.3	4.4	
Vocational or technical	29	12.5	19.4	16.0	
Other	1	0.0	1.1	0.6	
Parent(s) graduated from or attended college					
Yes	73	46.6	33.7	39.9	0.103
No	110	53.4	66.3	60.1	
Family receiving Food Stamps					
Yes	50	20.5	33.7	27.3*	0.066
No	133	79.5	66.3	72.7	
Ever in a year-round training program not sponsored by the sample member's high school					
Yes	19	6.8	13.7	10.4	0.201
No	164	93.2	86.3	89.6	
Sample Size	183	88	95		

SOURCE AND NOTES: See Table A.2.

TABLE A.9

ESTIMATED REGRESSION COEFFICIENTS FOR PROBABILITY OF
UNIT SURVEY RESPONSE

	Sample and Dependent Variable				
Regressor or Statistic	Full Sample 1989 Survey Response	Full Sample 1988 Survey Response	Full Sample Response to Both Surveys	1988 Responders 1989 Survey Response	1989 Responders 1988 Survey Response
Constant	0.820***	0.931***	0.789***	0.847***	0.962***
Experimental	-0.017	-0.004	-0.012	-0.008	0.007
Male	-0.121***	-0.018	-0.118***	-0.111***	-0.001
Site					
The Bronx, New York	-0.077*	0.056**	-0.039	-0.094**	0.045**
Gary, Indiana	0.019	0.062**	0.028	-0.028	0.011
Indianapolis, Indiana	----	----	----	----	----
Jacksonville, Florida	-0.107***	0.039	-0.084**	-0.124***	0.026
Rochester, New York	-0.037	0.057**	-0.021	-0.074**	0.017
Santa Ana, California	-0.055	0.004	-0.072	-0.079*	-0.023
Youngstown, Ohio	-0.056	0.018	-0.046	-0.063	0.010
Employed anytime during the year before random assignment	0.017	0.030*	0.025	-0.000	0.011
Recent grade average C, D, or F	-0.018	-0.006	-0.018	-0.013	-0.001
Ever a school dropout for a semester or more	-0.134	-0.060	-0.145	-0.110	-0.025
Problems with English and another language is usually spoken at home	0.044	0.005	0.004	-0.004	-0.040
Living with both parents	0.067***	0.029**	0.077***	0.055***	0.015
Has own child(ren)	-0.096	0.022	-0.111*	-0.135**	-0.026
Ever in a summer work program	-0.037	0.007	-0.025	-0.033	0.014
Employed anytime during the previous school year	-0.038	-0.007	-0.045*	-0.043*	-0.012
Ever expelled or suspended	-0.034	-0.039**	-0.050*	-0.020	-0.024*

(continued)

TABLE A.9 (continued)

	Sample and Dependent Variable				
Regressor or Statistic	Full Sample 1989 Survey Response	Full Sample 1988 Survey Response	Full Sample Response to Both Surveys	1988 Responders 1989 Survey Response	1989 Responders 1988 Survey Response
Ethnicity					
White, non-Hispanic	0.027	-0.018	0.013	0.031	-0.017
Hispanic	0.059*	-0.014	0.048	0.068**	-0.012
Black or other	----	----	----	----	----
Family receiving cash welfare	-0.044*	-0.013	-0.035	-0.025	0.009
Age 18 or older	0.041	-0.018	0.040	0.063*	0.001
Courses mostly college preparatory	0.024	0.002	0.039*	0.038*	0.020*
Parent(s) graduated from or attended college	0.012	0.010	0.011	0.001	-0.002
Family receiving Food Stamps	0.022	-0.008	0.009	0.015	-0.014
Ever in a year-round training program not sponsored by the sample member's high school	0.053	-0.006	0.051	0.059*	-0.001
Number of observations	1574	1574	1574	1463	1277
Number of experimentals	799	799	799	742	641
Number of controls	775	775	775	721	636
Degrees of freedom for error	1548	1548	1548	1437	1251
Error mean square	0.147	0.065	0.164	0.127	0.033
R square	0.056	0.023	0.051	0.055	0.024
Mean of dependent variable	0.811	0.929	0.783	0.843	0.966
F statistic	3.645	1.466	3.305	3.364	1.238
P value of F statistic	0.000	0.065	0.000	0.000	0.194

SOURCE: MDRC calculations from Career Beginnings enrollment form data.

NOTES: The dependent variable in each regression equation was unity for early assignment or survey completion, and zero otherwise. Each characteristic on the right-hand side of each equation was measured as a deviation from its mean.

A two-tailed t-test was applied to each coefficient estimate. Statistical significance levels are indicated as *** = 1 percent or less; ** = 5 percent; * = 10 percent. A key result in every regression was that the coefficient of experimental status was not significantly different from zero.

The p value of the F statistic is the probability of obtaining these coefficient estimates if the true chance of completing the survey did not vary with any characteristic. Thus, the closer the p value is to zero, the more important are differences in characteristics between survey completers and noncompleters.

APPENDIX B: SUPPLEMENT TO CHAPTER 4

TABLE B.1

IMPACTS ON COLLEGE ATTENDANCE DURING MAY 1989, BY SELECTED BASELINE CHARACTERISTICS

		Attended a 2- or 4-Year College During May 1989					
Characteristic and Subgroup	Sample Size	Experimentals (%)	Controls (%)	Subgroup Impact	p[a]	Subgroup Impact Difference[b]	p[a]
Sex						-0.4	0.948
Female	791	47.6	43.2	4.4	0.174	---	---
Male	442	48.5	43.7	4.8	0.274	---	---
Site						---	0.510
The Bronx, New York	170	38.3	41.2	-2.9	0.678	---	---
Gary, Indiana	179	59.3	45.7	13.6**	0.046	---	---
Indianapolis, Indiana	212	33.6	35.8	-2.1	0.732	---	---
Jacksonville, Florida	153	54.7	42.3	12.4*	0.097	---	---
Rochester, New York	174	46.6	44.1	2.4	0.720	---	---
Santa Ana, California	162	59.6	54.5	5.1	0.480	---	---
Youngstown, Ohio	183	47.4	41.9	5.5	0.420	---	---
Employed anytime during the year before random assignment						3.5	0.505
Yes	646	49.6	43.4	6.2*	0.085	---	---
No	587	46.0	43.3	2.7	0.469	---	---
Recent grade average						-1.9	0.717
A or B	595	58.3	54.7	3.6	0.342	---	---
C, D, or F	638	38.2	32.8	5.5	0.133	---	---
Ever a school dropout for a semester or more						8.8	0.721
Yes	14	33.6	20.4	13.2	0.589	---	---
No	1,219	48.1	43.6	4.4*	0.089	---	---
Problems with English and another language is usually spoken at home						9.5	0.487
Yes	46	49.0	35.3	13.7	0.308	---	---
No	1,187	47.9	43.7	4.2	0.115	---	---
Living with both parents						-5.6	0.287
Yes	528	47.7	46.3	1.3	0.736	---	---
No	705	48.1	41.2	6.9**	0.044	---	---

(continued)

TABLE B.1 (continued)

Characteristic and Subgroup	Sample Size	Attended a 2- or 4-Year College During May 1989		Subgroup Impact	p[a]	Subgroup Impact Difference[b]	p[a]
		Experimentals (%)	Controls (%)				
Has own child(ren)						7.6	0.668
Yes	28	47.7	35.7	11.9	0.494	---	---
No	1,205	47.9	43.6	4.4*	0.097	---	---
Ever in a summer work program						0.3	0.950
Yes	495	44.5	39.7	4.7	0.247	---	---
No	738	50.2	45.8	4.4	0.191	---	---
Employed anytime during the previous school year						-3.7	0.514
Yes	384	43.8	41.8	2.0	0.668	---	---
No	849	49.8	44.1	5.7*	0.070	---	---
Ever expelled or suspended						-2.5	0.712
Yes	227	34.5	32.0	2.5	0.676	---	---
No	1,006	51.0	46.0	5.0*	0.083	---	---
Ethnicity						---	0.246
White, non-Hispanic	114	42.8	40.9	1.9	0.824	---	---
Black, non-Hispanic	849	47.2	43.5	3.8	0.229	---	---
Hispanic	179	42.9	42.5	0.3	0.959	---	---
Other	91	69.4	46.6	22.8**	0.017	---	---
Family receiving cash welfare						-7.3	0.198
Yes	383	45.6	46.0	-0.4	0.926	---	---
No	850	49.0	42.1	6.8**	0.030	---	---
Age						-2.4	0.787
18 or older	124	44.0	41.6	2.4	0.767	---	---
17 or under	1,109	48.3	43.6	4.8*	0.082	---	---
Courses mostly college preparatory						0.5	0.923
Yes	449	61.2	56.3	4.9	0.260	---	---
No	784	40.3	36.0	4.3	0.185	---	---
Parent(s) graduated from or attended college						3.9	0.487
Yes	405	52.0	44.9	7.1	0.116	---	---
No	828	46.0	42.7	3.3	0.304	---	---

(continued)

TABLE B.1 (continued)

Characteristic and Subgroup	Sample Size	Attended a 2- or 4-Year College During May 1989: Experimentals (%)	Attended a 2- or 4-Year College During May 1989: Controls (%)	Subgroup Impact	p[a]	Subgroup Impact Difference[b]	p[a]
Family receiving Food Stamps						-3.3	0.582
Yes	317	44.6	42.5	2.1	0.682	---	---
No	916	49.0	43.6	5.4*	0.075	---	---
Ever in a year-round training program not sponsored by the sample member's high school						5.9	0.539
Yes	100	54.5	44.5	10.0	0.280	---	---
No	1,133	47.4	43.3	4.1	0.133	---	---

SOURCES: MDRC calculations from Career Beginnings enrollment form and 1989 survey data.

NOTES: Calculations for this table used self-reported data for all 621 experimentals and all 612 controls who responded to both the 1988 and 1989 surveys, including those with values of zero for outcomes and those who were assigned to Career Beginnings but did not participate. Subgroup sample sizes for some characteristics may fall short of the total number of sample members because of items missing from data for some survey responders.

Average experimental and control group outcomes reported here are adjusted means from two-way analysis of covariance procedures controlling for up to 23 kinds of difference in characteristics, other than the characteristic used to define subgroups, before random assignment. The two categories used as factors were research assignment and, one at a time, the baseline characteristics indicated (see Ostle, 1975, p. 454). Because of rounding, there may be slight discrepancies in reported sums and differences of these adjusted means.

[a] Two-tailed t-tests were applied to within-subgroup impacts and also to differences between subgroup impacts. For each characteristic with more than two subgroups (site and ethnicity), an F test was applied to the interaction between that characteristic and experimental or control status. The columns labeled "p" are the statistical significance levels of each impact, each difference between impacts, or each F statistic: that is, p is the probability that sample estimates are non-zero only because of random error. Statistical significance levels are indicated as *** = 1 percent or less; ** = 5 percent; * = 10 percent.

[b] For each characteristic that has only two subgroups, the subgroup impact difference is the impact within the first subgroup, less the impact within the second subgroup.

APPENDIX C: SUPPLEMENT TO CHAPTER 4

NONEXPERIMENTAL ANALYSIS OF THE ASSOCIATION BETWEEN COLLEGE-GOING AND RECEIPT OF CAREER SERVICES

I. Introduction

The body of this report concerned the experiment conducted to evaluate the impacts of assignment to Career Beginnings. Chapter 2 explained the recruitment of a group of high school juniors, who were then randomly assigned to two groups – the experimentals and the controls. The chapter showed that there were no systematic overall differences between the two groups in measured (and presumably unmeasured) characteristics expected to be associated with college-going. Chapter 3 showed that, while 15 to 20 percentage points more experimentals than controls received some of the core services provided by Career Beginnings (including mentoring, preparation for college entrance exams, and workshops on studying and test-taking), a substantial proportion of the control group also received these career services, mainly from sources outside the Career Beginnings program. Chapter 4 showed that the higher "dose" of career services available to Career Beginnings experimentals led to a 4.7 percentage point increase in their rate of attendance at two- or four-year colleges.

While Chapters 1-4 dealt with comparisons between experimentals and controls, this analysis takes a step back from the experiment to look at the much wider variation within each group, concentrating especially on the association between service receipt and college-going. The analysis starts by explaining why it may be useful to investigate these nonexperimental comparisons, and the cautions necessary for interpreting them. Next, the stage is set for analyzing the link between services and outcomes. The discussion shows that the relationship between service receipt and outcomes is not a simple one: Those who received services had different characteristics from those who did not, so any analysis of the link between service receipt and outcomes must take account of this. Then follows a comparison of college-going among experimentals and among controls who received no services, a few services, and many services. The analysis concludes with tests of a few simple hypotheses about service receipt and outcomes: Is increased service receipt associated with increased college-going? Are individual services associated quite differently with rate of college-going? Does mentoring serve as a catalyst that increases the association of other services with college-going?

II. The Purpose of This Nonexperimental Analysis and Cautions in Interpreting It

The Career Beginnings evaluation gives a rigorously defensible answer to the question of whether the ready availability of *more* career services leads to more college-going among disadvantaged in-school youths. However, another important question for programs targeting disadvantaged college-bound youths is whether career services – no matter what the services – raise their college attendance rates. Even from a purely descriptive standpoint, it is of interest to know what the rate of college-going was for those who received no career services compared to the rate for those who got some help, and what the rate of college-going was with and without each of the core services provided by Career Beginnings and other sources.

Unfortunately, the general relationship between service receipt and college-going cannot be established with anything like the confidence with which it was possible to answer the question addressed by the experimental evaluation (the impact of assignment to Career Beginnings services in particular). While there was a great deal of variation in service receipt and in college-going *within* the control group and *within* the experimental group – which is necessary for exploring this more general question about services and college-going – the differences in characteristics of those receiving and not receiving services makes it impossible to confidently attribute differences in college-going rates to differences in services alone. Compared to the evidence presented in the body of the report, the results presented here are much more speculative; they cannot answer questions about the unknown true causal relationship between career services and college-going.

As explained in Chapter 2 and Appendix A, the reason these analyses are not at all as convincing as experimental analyses is selection bias: Since non-Career Beginnings services were not assigned to sample members at random, measured and/or unmeasured characteristics of those who got different services were not the same. Thus grouping sample members by the kinds or amounts of career services they received and then comparing average rates of college-going across the groups would yield biased estimates of the effects of services. While this discussion applies techniques for taking into account differences in measured characteristics between sample members who got different amounts and combinations of services, it is not easy to control for differences in unmeasured characteristics. For example, when comparing college-going rates for those who had intensive classes in reading or math with rates for those who did not, it would not be correct to attribute the difference in college-going solely to the reading or math classes. Clearly, those who went into such classes might have been systematically different from those who did not in characteristics not measured – such as reading or math achievement. Because groups getting different services may have different unmeasured characteristics, we do not know whether using a service leads to college-going, or whether the college-bound tend to make sure to get the service, or whether someone else tends to make sure they get it. For this reason, the results presented in this appendix are called "associations" or "relationships," and not "impacts" or "effects."

III. Characteristics of College-Goers and Non-College-Goers

To analyze the relationship between college-going and service receipt, the influence on college-going of factors other than services received must be taken into account. While some factors influencing college-going (such as career aspirations and college aptitude) were not measured for the Career Beginnings evaluation, many others were.

Chapter 4 (and especially Table 4.4) addressed the question of how the *impact* on college-going varied among subgroups of the sample, such as men and women. Another question to consider is, within the experimental group and within the control group, what were the measured characteristics of those who did and did not go to college? Tables C.1 and C.2 compare the distributions of characteristics of attenders and nonattenders in each group. Table C.1, for the experimental group, shows that the distribution of virtually every measured baseline characteristic varied significantly between those who went to college and those who did not.

The proportions for "Both Groups" in the next-to-last column are based on the sample sizes in the first column. The second and third columns show the characteristics for experimentals who did ("Yes") and did not ("No") attend college. Thus, the first two rows of the table show that 66.3 percent of experimental members of the impact sample ("Both Groups") are women, and 33.7 percent are men. The second and third columns in the body of the table show that 69.0 percent of college attenders were women and 31.0 percent were men, and that 63.4 percent of nonattenders were women and 36.6 percent were men. The fact that 69.0 percent is more than 66.3 percent shows that those who went to college were

TABLE C.1

EXPERIMENTALS' COLLEGE ATTENDANCE, BY SELECTED BASELINE CHARACTERISTICS

Characteristic and Subgroup	Sample Size	Ever Attended a 2- or 4-Year College, June 1988-May 1989		Both Groups (%)	p[a]
		Yes (%)	No (%)		
Sex					
Female	412	69.0	63.4	66.3	0.162
Male	209	31.0	36.6	33.7	
Site					
The Bronx, New York	82	11.7	14.9	13.2***	0.000
Gary, Indiana	90	17.8	10.8	14.5	
Indianapolis, Indiana	112	9.2	27.8	18.0	
Jacksonville, Florida	84	14.4	12.5	13.5	
Rochester, New York	81	11.0	15.3	13.0	
Santa Ana, California	84	18.7	7.8	13.5	
Youngstown, Ohio	88	17.2	10.8	14.2	
Employed anytime during the year before random assignment					
Yes	332	50.0	57.2	53.5*	0.082
No	289	50.0	42.7	46.5	
Recent grade average					
A or B	295	60.4	33.2	47.5***	0.000
C, D, or F	326	39.6	66.8	52.5	
Ever a school dropout for a semester or more					
Yes	7	0.3	2.0	1.1*	0.098
No	614	99.7	98.0	98.9	
Problems with English and another language is usually spoken at home					
Yes	23	5.2	2.0	3.7*	0.060
No	598	94.8	98.0	96.3	
Living with both parents					
Yes	269	46.6	39.7	43.3*	0.095
No	352	53.4	60.3	56.7	

(continued)

TABLE C.1 (continued)

Characteristic and Subgroup	Sample Size	Ever Attended a 2- or 4-Year College, June 1988-May 1989 Yes (%)	No (%)	Both Groups (%)	p[a]
Has own child(ren)					
Yes	12	1.5	2.4	1.9	0.641
No	609	98.5	97.6	98.1	
Ever in a summer work program					
Yes	251	32.5	49.2	40.4***	0.000
No	370	67.5	50.8	59.6	
Employed anytime during the previous school year					
Yes	196	28.2	35.3	31.6*	0.072
No	425	71.8	64.7	68.4	
Ever expelled or suspended					
Yes	119	11.0	28.1	19.2***	0.000
No	502	89.0	71.9	80.8	
Ethnicity					
White, non-Hispanic	49	7.4	8.5	7.9***	0.001
Black, non-Hispanic	439	66.6	75.3	70.7	
Hispanic	85	14.1	13.2	13.7	
American Indian	1	0.0	0.3	0.2	
Asian or Pacific Islander	45	11.3	2.7	7.2	
Other	2	0.6	0.3	0.3	
Family receiving cash welfare					
Yes	191	28.5	33.2	30.8*	0.239
No	430	71.5	66.8	69.2	
Age 18 or older					
Yes	58	9.2	9.5	9.3	1.000
No	563	90.8	90.5	90.7	
Courses mostly college preparatory					
Yes	215	47.5	20.3	34.6***	0.000
No	406	52.5	79.7	65.4	
Parent(s) graduated from or attended college					
Yes	193	38.3	23.1	31.1***	0.000
No	428	61.7	76.9	68.9	

(continued)

TABLE C.1 (continued)

		Ever Attended a 2- or 4-Year College, June 1988-May 1989			
Characteristic and Subgroup	Sample Size	Yes (%)	No (%)	Both Groups (%)	p[a]
Family receiving Food Stamps					
Yes	154	21.8	28.1	24.8*	0.082
No	467	78.2	71.9	75.2	
Ever in a year-round training program not sponsored by the sample member's high school					
Yes	42	8.3	5.1	6.8	0.154
No	579	91.7	94.9	93.2	

SOURCES: MDRC calculations from Career Beginnings enrollment form and 1989 survey data.

NOTES: Calculations for this table used self-reported data for all 621 experimentals who responded to both the 1988 and 1989 surveys. Subgroup sample sizes for some characteristics may fall short of the total number of sample members because of items missing from data for some survey responders.

Because of rounding, distributions may not total exactly 100.0 percent.

[a] The column labeled "p" is the statistical significance level of the difference between the distributions of characteristics for college attenders and nonattenders: that is, p is the probability that distributions are different only because of random error. A Pearson chi-square test was used to test the hypothesis of equal distributions. Statistical significance levels are indicated as *** = 1 percent or less; ** = 5 percent; * = 10 percent.

TABLE C.2

CONTROLS' COLLEGE ATTENDANCE, BY SELECTED BASELINE CHARACTERISTICS

Characteristic and Subgroup	Sample Size	Ever Attended a 2- or 4-Year College, June 1988-May 1989		Both Groups (%)	p[a]
		Yes (%)	No (%)		
Sex					
Female	379	61.1	62.7	61.9	0.751
Male	233	38.9	37.3	38.1	
Site					
The Bronx, New York	88	14.6	14.1	14.4***	0.000
Gary, Indiana	89	15.6	13.5	14.5	
Indianapolis, Indiana	100	8.3	24.1	16.3	
Jacksonville, Florida	69	12.3	10.3	11.3	
Rochester, New York	93	16.3	14.1	15.2	
Santa Ana, California	78	17.6	8.0	12.7	
Youngstown, Ohio	95	15.3	15.8	15.5	
Employed anytime during the year before random assignment					
Yes	314	45.8	56.6	51.3***	0.010
No	298	54.2	43.4	48.7	
Recent grade average					
A or B	300	61.8	36.7	49.0***	0.000
C, D, or F	312	38.2	63.3	51.0	
Ever a school dropout for a semester or more					
Yes	7	0.0	2.3	1.1**	0.025
No	605	100.0	97.7	98.9	
Problems with English and another language is usually spoken at home					
Yes	23	5.0	2.6	3.8	0.175
No	589	95.0	97.4	96.2	
Living with both parents					
Yes	259	46.8	37.9	42.3**	0.032
No	353	53.2	62.1	57.7	

(continued)

TABLE C.2 (continued)

Characteristic and Subgroup	Sample Size	Ever Attended a 2- or 4-Year College, June 1988-May 1989		Both Groups (%)	p[a]
		Yes (%)	No (%)		
Has own child(ren)					
Yes	16	1.3	3.9	2.6*	0.088
No	596	98.7	96.1	97.4	
Ever in a summer work program					
Yes	244	30.9	48.6	39.9***	0.000
No	368	69.1	51.4	60.1	
Employed anytime during the previous school year					
Yes	188	28.6	32.8	30.7	0.296
No	424	71.4	67.2	69.3	
Ever expelled or suspended					
Yes	108	9.6	25.4	17.6***	0.000
No	504	90.4	74.6	82.4	
Ethnicity					
White, non-Hispanic	65	11.6	9.6	10.6**	0.016
Black, non-Hispanic	410	62.5	71.4	70.0	
Hispanic	94	16.3	14.5	15.4	
American Indian	2	0.0	0.6	0.3	
Asian or Pacific Islander	41	9.6	3.9	6.7	
Other	0	0.0	0.0	0.0	
Family receiving cash welfare					
Yes	192	28.9	33.8	31.4	0.227
No	420	71.1	66.2	68.6	
Age 18 or older					
Yes	66	10.6	10.9	10.8	1.000
No	546	89.4	89.1	89.2	
Courses mostly college preparatory					
Yes	234	51.2	25.7	38.2***	0.000
No	378	48.8	74.3	61.8	
Parent(s) graduated from or attended college					
Yes	212	39.5	29.9	34.6**	0.016
No	400	60.5	70.1	65.4	

(continued)

TABLE C.2 (continued)

		Ever Attended a 2- or 4-Year College, June 1988-May 1989			
Characteristic and Subgroup	Sample Size	Yes (%)	No (%)	Both Groups (%)	p[a]
Family receiving Food Stamps					
Yes	163	22.6	30.5	26.6**	0.033
No	449	77.4	69.5	73.4	
Ever in a year-round training program not sponsored by the sample member's high school					
Yes	58	10.0	9.0	9.5	0.788
No	554	90.0	91.0	90.5	

SOURCES: MDRC calculations from Career Beginnings enrollment form and 1989 survey data.

NOTES: Calculations for this table used self-reported data for all 612 controls who responded to both the 1988 and 1989 surveys. Subgroup sample sizes for some characteristics may fall short of the total number of sample members because of items missing from data for some survey responders.

Because of rounding, distributions may not total exactly 100.0 percent.

[a]The column labeled "p" is the statistical significance level of the difference between the distributions of characteristics for college attenders and nonattenders: that is, p is the probability that distributions are different only because of random error. A Pearson chi-square test was used to test the hypothesis of equal distributions. Statistical significance levels are indicated as *** = 1 percent or less; ** = 5 percent; * = 10 percent.

more likely than nonattenders to be women, though the p value of 0.162 shows that this difference was not statistically significant. Similarly, the other rows of the table show that those who went to college were more likely to have entered the sample at Gary, Jacksonville, Santa Ana, or Youngstown; less likely to have worked during the base year or during the school year; less likely to have been in a summer work program; much more likely to have had good grades; more likely to have lived with both parents; less likely to have been expelled or suspended; less likely to come from welfare homes; much more likely to have taken mainly college-preparatory courses; and more likely to have parents who attended college. Table C.2 shows similar results within the control group.

IV. The Relationship Between Characteristics and Services Received

Measured and unmeasured characteristics of sample members affected not only their college-going but also their rates of receipt of various services. Chapter 3 (and especially Table 3.11) showed the association between various measured characteristics and *experimental-control differences* in average number of services received. Tables C.3 and C.4 address this same issue in a slightly different way. Each column of the table reports the results of a linear regression of receipt of a particular service on measured baseline characteristics. The entry for the "Constant," or intercept, is the overall rate of receipt of the service. For example, 20.1 percent of experimentals and 13.7 percent of controls received help with reading or math. The other coefficients show the association of each baseline characteristic with receipt of the service, controlling for the influences of all other measured baseline characteristics. For example, the entry for "Male" in the first column of Table C.3 shows that, other measured characteristics held constant, experimental group men were 4.2 percent more likely to get special help with reading or math than experimental group women. The corresponding entry in the first column of Table C.4 shows that, other measured characteristics held constant, control group men were 9.0 percent more likely to get special help with reading or math than control group women.

These tables tell an interesting story about the kinds of services received by different kinds of experimentals and different kinds of controls. Jacksonville and Bronx experimentals, all other measured characteristics held constant, were much more likely to get reading or math help than experimentals in other sites, but Bronx controls were also much more likely than

TABLE C.3

ASSOCIATION OF SERVICE RECEIPT WITH SELECTED BASELINE CHARACTERISTICS AMONG EXPERIMENTALS: ESTIMATED REGRESSION COEFFICIENTS FOR PROBABILITY OF RECEIVING SERVICES

Regressor or Statistic	Reading or Math Help	Tutoring	Study Skills	Entrance Exam Help	Application Form Help	College Fair	Career Fair	Job Skills Workshop	Mentoring	Counseling Sessions	Family Planning
Constant	20.1***	17.6***	42.0***	55.9***	63.9***	60.1***	56.5***	68.9***	64.3***	75.0***	23.8***
Male	4.2	11.1***	2.1	-4.5	-3.8	-4.9	-1.1	2.7	-6.6	1.9	1.4
Site											
The Bronx, New York	16.4**	12.9**	13.6*	21.0**	-13.4*	21.7***	2.5	-23.1***	-12.0	9.5	8.7
Gary, Indiana	7.0	-1.7	33.5***	29.1***	0.8	4.1	23.0***	25.0***	7.1	20.8***	15.2**
Indianapolis, Indiana	----	----	----	----	----	----	----	----	----	----	----
Jacksonville, Florida	40.9***	27.5***	22.2***	8.0	1.2	-3.2*	21.3***	6.7	12.0	22.2***	-3.8
Rochester, New York	-0.1	-5.9	-2.2	-0.9	-6.4	4.4	18.3**	3.2	24.1***	19.1***	-10.7
Santa Ana, California	6.0	1.5	8.6	14.0	9.1	15.2	22.3**	3.4	12.3	10.4	-5.2
Youngstown, Ohio	0.4	-4.9	31.6***	11.4	12.0	-8.6	23.1***	14.7*	18.3**	8.4	6.3
Employed anytime during the year before random assignment	2.6	-8.8**	5.1	2.2	1.1	3.3	6.3	-2.7	-8.3	10.3**	-3.5
Recent grade average C, D, or F	-8.2**	-4.1	-11.8***	-10.0**	-5.6	-9.6**	-0.2	-8.5**	-0.1	-11.2***	0.2
Ever a school dropout for a semester or more	-23.2	-10.2	-15.3	1.3	-19.7	-4.0	17.9	-1.3	-24.8	2.8	14.3
Problems with English and another language is usually spoken at home	4.7	-4.0	-5.8	-4.3	-6.4	-4.9	-23.7**	-9.1	6.3	-2.6	13.0
Living with both parents	-7.3**	-2.2	-7.7*	-1.3	8.7**	-1.1	-0.3	2.9	-2.7	-3.1	-3.9
Has own child(ren)	1.5	-9.6	-16.9	-0.1	7.4	-7.0	10.7	-12.4	21.4	-25.2**	-4.6
Ever in a summer work program	0.3	5.8	3.2	8.3	7.6	-2.3	9.1*	3.3	9.6*	3.6	4.4
Employed anytime during the previous school year	-2.1	5.0	-8.1	-3.1	-2.1	5.0	-10.1*	-4.0	-2.4	-5.2	0.8
Ever expelled or suspended	-0.6	-3.7	2.5	-4.2	-7.1	-1.6	3.0	-7.7	0.0	-0.6	7.1

(continued)

TABLE C.3 (continued)

Regressor or Statistic	Reading or Math Help	Tutoring	Study Skills	Entrance Exam Help	Application Form Help	College Fair	Career Fair	Job Skills Workshop	Mentoring	Counseling Sessions	Family Planning
Ethnicity											
White, non-Hispanic	-8.8	-1.0	-31.7***	-20.8***	-34.0***	-21.6***	-22.8***	-23.4***	-14.8**	-3.0	-12.5*
Hispanic	-6.6	-1.6	-18.4***	-10.4	-5.4	-2.3	9.0	3.8	-7.1	0.6	-1.0
Black or other	----	----	----	----	----	----	----	----	----	----	----
Family receiving cash welfare	-3.3	-5.3	-4.2	-2.8	5.1	-3.8	-4.1	-0.5	-9.0*	-4.7	-8.1*
Age 18 or older	10.3*	8.1	-1.3	-7.2	-5.7	-4.8	-6.3	0.4	-0.4	-11.8*	1.8
Courses mostly college preparatory	-3.4	3.2	-3.6	10.6**	7.3	10.8**	13.1***	1.5	8.8*	1.7	3.5
Parent(s) graduated from or attended college	-4.8	-7.7**	0.6	5.2	-3.2	8.8**	1.0	-0.5	-0.1	3.3	2.2
Family receiving Food Stamps	3.1	0.6	2.4	-1.5	-0.5	1.9	-4.9	1.0	-1.2	-0.3	-1.2
Ever in a year-round training program not sponsored by the sample member's high school	2.5	-11.0*	-1.6	13.2*	5.2	16.0**	5.6	-1.2	6.0	8.5	3.9
Number of observations	621	621	621	621	621	621	621	621	621	621	621
Number of experimentals	621	621	621	621	621	621	621	621	621	621	621
Number of controls	0	0	0	0	0	0	0	0	0	0	0
Degrees of freedom for error	596	596	596	596	596	596	596	596	596	596	596
Error mean square	1409.56	1310.63	2150.75	2257.48	2158.60	2250.43	2335.02	1975.04	2167.88	1821.83	1773.80
R square	0.16	0.13	0.15	0.12	0.10	0.10	0.09	0.11	0.09	0.07	0.06
Mean of dependent variable	20.1	17.6	42.0	55.9	63.9	60.1	56.5	68.9	64.3	75.0	23.8
F statistic	4.68	3.74	4.48	3.43	2.81	2.75	2.40	3.23	2.58	1.77	1.65
P value of F statistic	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.03

SOURCES: MDRC calculations from Career Beginnings enrollment form and 1988 survey data.

NOTES: The dependent variable in each regression equation was 100 for each experimental who received the service and zero otherwise. Each characteristic on the right-hand side of each equation was measured as a deviation from its mean; thus, the coefficient of the constant is the percentage of the sample that received the service.

A two-tailed t-test was applied to each coefficient estimate. Statistical significance levels are indicated as *** = 1 percent or less; ** = 5 percent; * = 10 percent.

The p value of the F statistic is the probability of obtaining these coefficient estimates if the true chance of receiving the service did not vary with any characteristic. Thus, the closer the p value is to zero, the more important are differences in characteristics between those who did and those who did not receive the service.

TABLE C.4

ASSOCIATION OF SERVICE RECEIPT WITH SELECTED BASELINE CHARACTERISTICS AMONG CONTROLS: ESTIMATED REGRESSION COEFFICIENTS FOR PROBABILITY OF RECEIVING SERVICES

Regressor or Statistic	Reading or Math Help	Tutoring	Study Skills	Entrance Exam Help	Application Form Help	College Fair	Career Fair	Job Skills Workshop	Mentoring	Counseling Sessions	Family Planning
Constant	13.7***	12.9***	24.2***	39.5***	52.8***	56.2***	41.2***	56.4***	45.1***	66.2***	16.5***
Male	9.0***	3.2	3.2	3.6	-3.2	-5.2	1.0	-4.8	-4.7	1.8	-0.9
Site											
The Bronx, New York	33.9***	14.8**	32.6***	12.0	0.3	24.5***	27.4***	1.0	14.7*	17.9**	2.1
Gary, Indiana	6.2	3.8	23.3***	2.8	-5.4	3.5	25.1***	13.3*	18.6**	4.6	4.8
Indianapolis, Indiana	----	----	----	----	----	----	----	----	----	----	----
Jacksonville, Florida	8.2	14.6***	17.1**	-1.8	-10.4	-3.4	25.2***	-6.4	16.3*	1.2	13.0*
Rochester, New York	1.5	2.1	8.5	-1.9	-2.3	2.2	10.3	2.7	9.2	15.5**	3.0
Santa Ana, California	8.3	4.6	-0.3	-17.5*	-8.2	-6.1	29.3***	-9.9	-20.3**	-6.3	1.6
Youngstown, Ohio	1.0	-8.0	9.7	-10.7	-6.0	-9.8	11.9	7.0	6.3	-5.8	-6.5
Employed anytime during the year before random assignment	-4.5	1.3	0.6	-6.5	-10.4**	-1.0	3.7	-4.0	4.0	4.3	-3.6
Recent grade average C, D, or F	1.1	-2.4	2.0	-7.6*	-8.2*	-14.2***	-6.0	-2.2	1.2	-5.2	2.9
Ever a school dropout for a semester or more	10.9	-6.5	11.0	3.4	-7.1	13.5	40.9**	27.7	-13.4	12.5	8.1
Problems with English and another language is usually spoken at home	-2.7	-3.1	2.3	-4.1	18.6	-7.6	-7.0	2.4	0.3	-9.1	-6.7
Living with both parents	-1.4	5.8**	1.9	-0.1	-0.7	3.8	-0.5	-1.5	2.2	8.1*	-0.7
Has own child(ren)	-9.6	-3.4	-14.0	-24.9**	13.3	-8.2	-8.8	-15.8	0.3	-15.2	1.4
Ever in a summer work program	5.8	2.3	8.4*	1.4	15.8***	1.3	4.8	7.9	6.8	-6.5	0.9
Employed anytime during the previous school year	1.6	-3.5	0.9	2.4	-0.0	-2.4	-8.4*	5.2	0.3	-10.5**	2.2
Ever expelled or suspended	-3.2	-0.3	-3.8	-4.9	-0.8	-7.2	6.8	-3.4	6.0	4.8	2.9

(continued)

TABLE C.4 (continued)

Regressor or Statistic	Reading or Math Help	Tutoring	Study Skills	Entrance Exam Help	Application Form Help	College Fair	Career Fair	Job Skills Workshop	Mentoring	Counseling Sessions	Family Planning
Ethnicity											
White, non-Hispanic	-5.0	1.5	-4.9	-10.9	0.4	-7.4	-6.7	6.6	-6.7	7.3	4.4
Hispanic	-4.3	7.0	4.2	1.7	4.1	9.1	-1.8	6.6	0.8	-9.2	5.2
Black or other	----	----	----	----	----	----	----	----	----	----	----
Family receiving cash welfare	0.8	1.6	2.6	-2.3	-6.4	9.3*	-2.9	1.0	-5.0	10.2*	-1.8
Age 18 or older	5.0	8.0*	8.3	16.5**	3.9	-1.7	5.2	-1.8	1.0	-10.8*	1.5
Courses mostly college preparatory	2.7	-1.3	1.4	8.7**	-5.2	17.1***	1.1	-7.4*	-2.8	9.3**	-1.7
Parent(s) graduated from or attended college	-1.6	1.2	0.5	6.5	-0.4	4.4	-5.4	-10.5**	0.1	-1.9	5.6*
Family receiving Food Stamps	-2.4	6.4*	-1.9	-1.7	-1.1	-8.8	2.4	-9.3	-0.4	-6.8	5.3
Ever in a year-round training program not sponsored by the sample member's high school	3.5	1.7	15.9***	0.7	24.2***	1.8	24.6***	3.3	13.9**	-0.6	3.7
Number of observations	612	612	612	612	612	612	612	612	612	612	612
Number of experimentals	0	0	0	0	0	0	0	0	0	0	0
Number of controls	612	612	612	612	612	612	612	612	612	612	612
Degrees of freedom for error	587	587	587	587	587	587	587	587	587	587	587
Error mean square	1079.87	1080.64	1736.22	2288.04	2420.28	2219.65	2295.74	2444.62	2389.93	2139.42	1384.67
R square	0.13	0.08	0.09	0.08	0.07	0.14	0.09	0.05	0.07	0.08	0.03
Mean of dependent variable	13.7	12.9	24.2	39.5	52.8	56.2	41.2	56.4	45.1	66.2	16.5
F statistic	3.50	2.07	2.47	2.19	1.80	3.82	2.45	1.20	1.96	2.22	0.92
P value of F statistic	.00	.00	.00	.00	.01	.00	.00	.24	.00	.00	0.58

SOURCES: MDRC calculations from Career Beginnings enrollment form and 1988 survey data.

NOTES: The dependent variable in each regression equation was 100 for each control who received the service and zero otherwise. Each characteristic on the right-hand side of each equation was measured as a deviation from its mean; thus, the coefficient of the constant is the percentage of the sample that received the service.

A two-tailed t-test was applied to each coefficient estimate. Statistical significance levels are indicated as *** = 1 percent or less; ** = 5 percent; * = 10 percent.

The p value of the F statistic is the probability of obtaining these coefficient estimates if the true chance of receiving the service did not vary with any characteristic. Thus, the closer the p value is to zero, the more important are differences in characteristics between those who did and those who did not receive the service.

controls at other sites to get this kind of help, and even more likely to get it than Bronx experimentals.

The strengths of the programs at Gary and Jacksonville are borne out by the coefficients for those sites in Table C.3, which for the most part are large both absolutely and in comparison with the control group counterparts (Table C.4). Among experimentals and among controls, those with poor grades at baseline were less likely to get help with college application forms or entrance exams and less likely to attend college fairs. They may have been poor students, who were less likely to seek out such services, or perhaps their teachers and guidance counselors tended not to recommend that they get such services. In addition, among experimentals, but not among controls, those with poor grades were less likely to get help with reading or math, study skills workshops, job skills workshops, or counseling. Among experimentals, but not among controls, white sample members were significantly less likely to get most of the 11 services. In the control group and, to some extent, in the experimental group, those who had previously been in programs were more likely to receive some of the 11 services.

V. The Association Between College-Going and Types of Services Received, Controlling for Measured Baseline Characteristics

The discussion so far has shown that measured baseline characteristics are associated with differences in both college-going and service receipt. Table C.5 tries to remove this "background noise" in order to present a clearer picture of the relationship between college-going and receipt of particular career services. It results from a regression analysis which, at the same time, assesses the association of college-going with both measured baseline characteristics and services received. It shows that, for the most part, after taking into account the association with college-going of various measured baseline characteristics, such as sex, receipt of a service sometimes has a statistically significant positive association with college-going. For example, attending special preparatory classes for college entrance exams is associated with an 8.7 percentage point higher rate of college-going among experimentals and a 9.0 percentage point higher rate of college-going among controls.

However, sometimes the association is negative, as in the case of attending family planning workshops. Attending a family planning workshop is associated with a 10.3 percentage

TABLE C.5

ASSOCIATION OF BASELINE CHARACTERISTICS AND SERVICES RECEIVED WITH COLLEGE-GOING: ESTIMATED REGRESSION COEFFICIENTS AND P VALUES FOR PROBABILITY OF ATTENDING A TWO- OR FOUR-YEAR COLLEGE, JUNE 1988-MAY 1989

	Experimental Sample		Control Sample	
Regressor or Statistic	Coefficient	p[a]	Coefficient	p[a]
Constant	52.5***	0.000	49.2***	0.000
Male	-4.8	0.216	2.0	0.614
Site				
The Bronx, New York	2.4	0.762	6.1	0.476
Gary, Indiana	22.1***	0.002	11.0	0.140
Indianapolis, Indiana	----	----	----	----
Jacksonville, Florida	11.6	0.120	12.3	0.136
Rochester, New York	13.1*	0.074	16.9**	0.026
Santa Ana, California	25.8***	0.002	31.1***	0.001
Youngstown, Ohio	15.0*	0.063	6.9	0.403
Employed anytime during the year before random assignment	9.4*	0.065	-2.3	0.637
Recent grade average C, D, or F	-16.5***	0.000	-16.4***	0.000
Ever a school dropout for a semester or more	-20.1	0.244	-26.1	0.145
Problems with English and another language is usually spoken at home	5.1	0.631	-8.3	0.458
Living with both parents	1.2	0.755	1.3	0.749
Has own child(ren)	-4.2	0.752	-9.6	0.415
Ever in a summer work program	-11.2**	0.020	-4.5	0.362
Employed anytime during the previous school year	-9.8*	0.053	-1.4	0.781
Ever expelled or suspended	-16.7***	0.001	-13.1**	0.013
Ethnicity				
White, non-Hispanic	-7.3	0.312	1.0	0.886
Hispanic	-2.7	0.663	0.8	0.897
Black or other	----	----	----	----

(continued)

TABLE C.5 (continued)

Regressor or Statistic	Experimental Sample		Control Sample	
	Coefficient	p^a	Coefficient	p^a
Family receiving cash welfare	-2.3	0.636	1.3	0.802
Age 18 or older	0.6	0.930	2.3	0.714
Courses mostly college preparatory	16.6***	0.000	18.3***	0.000
Parent(s) graduated from or attended college	8.5**	0.041	5.3	0.196
Family receiving Food Stamps	-2.6	0.614	-1.8	0.723
Ever in a year-round training program not sponsored by the sample member's high school	10.9	0.137	1.6	0.805
Took classes in reading or math, apart from regular school classes	10.2*	0.054	-1.7	0.777
Got individualized academic tutoring	7.2	0.178	-9.5	0.103
Received help with studying and test-testing skills	-3.4	0.459	-4.1	0.427
Attended classes or workshops to prepare for college entrance exams	8.7**	0.048	9.0**	0.034
Attended classes on completing forms for admission and financial aid	-3.8	0.394	-0.6	0.887
Attended a college fair or other college information event	0.8	0.842	9.7**	0.023
Attended a career fair or other job information event	6.3	0.141	-2.0	0.646
Attended a job-readiness skills workshop on dress, lateness, etc.	5.0	0.276	-8.7**	0.034
Had mentor other than relative or friend	3.8	0.349	8.7**	0.030

(continued)

TABLE C.5 (continued)

Regressor or Statistic	Experimental Sample Coefficient	p[a]	Control Sample Coefficient	p[a]
Met at least twice with counselor	7.5*	0.088	13.7***	0.001
Attended a class or workshop on family planning	-10.3**	0.022	-7.5	0.149
Number of observations	621		612	
Number of experimentals	621		0	
Number of controls	0		612	
Degrees of freedom for error	585		576	
Error mean square	1920.67		2026.25	
R square	0.2745		0.2370	
Mean of dependent variable	52.496		49.183	
F statistic	6.32		5.11	
P value of F statistic	0.0001		0.0001	

SOURCES: MDRC calculations from Career Beginnings enrollment form and 1988 and 1989 survey data.

NOTES: The dependent variable in each regression equation was 100 for each college attender and zero otherwise. Each characteristic and service on the right-hand side of each equation was measured as a deviation from its mean; thus, the coefficient of the constant is the percentage of the overall sample that attended college.

[a] The p value of the F statistic is the probability of obtaining these coefficient estimates if the true chance of attending college did not vary with any characteristic or service. Thus, the closer the p value is to zero, the more important are differences in characteristics and services received between college attenders and nonattenders. A two-tailed t-test was applied to each coefficient estimate. Statistical significance levels are indicated as *** = 1 percent or less; ** = 5 percent; * = 10 percent.

point lower rate of college-going among experimentals and a 7.5 percentage point lower rate of college-going among controls. It is unlikely that attending the family planning workshop *caused* a lower rate of college-going. Rather, those who did not go to college because they instead started families may, in high school, have been more likely to attend a family planning workshop. There was a probable selection bias on an unmeasured characteristic: "more likely to be sexually active." Those who had the unmeasured characteristic were probably more likely to get the family planning treatment and less likely to go to college because of the unmeasured characteristic rather than because of any effect of family planning workshops themselves on college attendance. This example of the selection bias problem illustrates why the results presented in this appendix are "associations" or "relationships," not "impacts" or "effects."

VI. The Association Between College-Going and Number of Services Received, Controlling for Measured Baseline Characteristics

Although, as just shown, there is sometimes a negative association between service receipt and college-going, a reasonable hypothesis is that, all things considered, receiving more services is associated with a higher rate of college-going. Table C.6 shows the results from separate linear regressions run for experimentals and controls, in which measured baseline characteristics of youths and the number of services they received were used as "predictors" of college-going. For example, the row labeled "Male" shows that, among experimentals, males were 4.2 percent less likely to go to college than were females and that, among controls, males were 1.5 percent more likely to be college attenders. The row labeled "Number of Services Received" shows the association between added services and rate of college attendance. The coefficients in the table show that, on average for experimentals, one added service is associated with a 2.7 percentage point higher rate of college-going; for controls, it is associated with a 1.3 percentage point higher rate.

However, Table C.7 shows that this average misrepresents what happens at the extremes of service receipt. Receipt of each of the 11 career services presented in Table 3.6 was tallied for each sample member, and the totals were grouped, as shown, into categories: none; 1 or 2; 3, 4, or 5; and 6 to 11. The 621 experimentals and 612 controls in the impact sample were analyzed separately.

As shown in the table, 22.9 percent of the 16 experimentals who received none of the

TABLE C.6

ASSOCIATION OF BASELINE CHARACTERISTICS AND NUMBER OF SERVICES RECEIVED WITH COLLEGE-GOING: ESTIMATED REGRESSION COEFFICIENTS AND P VALUES FOR PROBABILITY OF ATTENDING A TWO- OR FOUR-YEAR COLLEGE, JUNE 1988-MAY 1989

	Experimental Sample		Control Sample	
Regressor or Statistic	Coefficient	p[a]	Coefficient	p[a]
Constant	52.5***	0.000	49.2***	0.000
Number of services received (0-11)	2.7***	0.000	1.3	0.107
Male	-4.2	0.273	1.5	0.706
Site				
The Bronx, New York	3.9	0.615	6.8	0.420
Gary, Indiana	22.7***	0.001	9.1	0.223
Indianapolis, Indiana	----	----	----	----
Jacksonville, Florida	17.7**	0.014	9.3	0.257
Rochester, New York	16.6**	0.022	18.0**	0.020
Santa Ana, California	27.9***	0.001	26.2***	0.004
Youngstown, Ohio	14.0*	0.081	4.9	0.557
Employed anytime during the year before random assignment	9.9**	0.049	-1.3	0.791
Recent grade average C, D, or F	-17.4***	0.000	-18.3***	0.000
Ever a school dropout for a semester or more	-21.4	0.215	-29.1	0.109
Problems with English and another language is usually spoken at home	3.0	0.774	-9.9	0.386
Living with both parents	0.8	0.836	2.3	0.574
Has own child(ren)	-4.1	0.756	-11.2	0.350
Ever in a summer work program	-10.9**	0.023	-6.8	0.172
Employed anytime during the previous school year	-10.2**	0.043	-2.8	0.570
Ever expelled or suspended	-17.9***	0.000	12.9**	0.015
Ethnicity				
White, non-Hispanic	-4.8	0.503	-0.6	0.926
Hispanic	-1.9	0.759	-1.4	0.831
Black or other	----	----	----	----

(continued)

TABLE C.6 (continued)

Regressor or Statistic	Experimental Sample Coefficient	 p[a]	Control Sample Coefficient	 p[a]
Family receiving cash welfare	-2.4	0.621	2.7	0.600
Age 18 or older	0.8	0.902	0.5	0.939
Courses mostly college preparatory	17.0***	0.000	22.3***	0.000
Parent(s) graduated from or attended college	8.0*	0.053	6.5	0.110
Family receiving Food Stamps	-2.6	0.614	-3.7	0.491
Ever in a year-round training program not sponsored by the sample member's high school	11.0	0.132	-0.2	0.982
Number of observations	621		612	
Number of experimentals	621		0	
Number of controls	0		612	
Degrees of freedom for error	595		586	
Error mean square	1943.28		2106.80	
R square	0.2534		0.1929	
Mean of dependent variable	52.496		49.183	
F statistic	8.08		5.60	
P value of F statistic	0.0001		0.0001	

SOURCES: MDRC calculations from Career Beginnings enrollment form and 1988 and 1989 survey data.

NOTES: The dependent variable in each regression equation was 100 for each college attender and zero otherwise. The number of services and each characteristic on the right-hand side of each equation was measured as a deviation from its mean; thus, the coefficient of the constant is the percentage of the overall sample that attended college.

[a] The p value of the F statistic is the probability of obtaining these coefficient estimates if the true chance of attending college did not vary with any characteristic or service. Thus, the closer the p value is to zero, the more important are differences in characteristics and in number of services received between college attenders and nonattenders. A two-tailed t-test was applied to each coefficient estimate. Statistical significance levels are indicated as *** = 1 percent or less; ** = 5 percent; * = 10 percent.

TABLE C.7

EDUCATIONAL OUTCOMES FOR EXPERIMENTALS AND CONTROLS, BY NUMBER OF SERVICES RECEIVED

Outcome and Number of Services Received	Experimentals	p[a]	Sample Size	Controls	p[a]	Sample Size
Ever attended a 2- or 4-year college, June 1988-May 1989 (%)						
Received no services	22.9***	0.006	16	27.6*	0.084	27
Received 1 or 2 services	46.5		90	46.7		145
Received 3, 4, or 5 services	49.3		201	50.5		250
Received 6 or more services	57.8		314	52.4		190
Number of months attended a 2- or 4-year college. June 1988-May 1989						
Received no services	2.2***	0.005	16	2.3*	0.078	27
Received 1 or 2 services	4.0		90	3.8		145
Received 3, 4, or 5 services	4.2		201	4.3		250
Received 6 or more services	5.1		314	4.5		190
Attended a 2- or 4-year college during May 1989 (%)						
Received no services	22.4**	0.032	16	27.6	0.250	27
Received 1 or 2 services	45.7		90	41.8		145
Received 3, 4, or 5 services	43.2		201	44.7		250
Received 6 or more services	51.8		314	47.0		190

SOURCES: MDRC calculations from Career Beginnings enrollment form and 1988 and 1989 survey data.

NOTES: This table includes services received from Career Beginnings and/or other sources. A participant could receive a maximum of 11 services (see Table 3.6).

Calculations for this table used self-reported data for all 621 experimentals and all 612 controls who responded to both the 1988 and 1989 surveys, including those with values of zero for outcomes and those who were assigned to Career Beginnings but did not participate.

Average experimental and control group outcomes reported here by service category are adjusted means from separate linear analysis of covariance procedures controlling for 24 kinds of difference in characteristics before random assignment (see Ostle, 1975, p. 461; Cave, 1987). Because of rounding, there may be slight discrepancies in reported sums and differences of these adjusted means.

[a] F tests were applied to differences among average outcomes by service category. The column labeled "p" is the statistical significance level of the differences among average outcomes: that is, p is the probability that average outcomes are different only because of random error. Statistical significance levels are indicated as *** = 1 percent or less; ** = 5 percent; * = 10 percent.

11 services attended a two- or four-year college by May 1989; 46.5 percent of the 90 experimentals who received 1 or 2 services went to college, more than double the rate for those who received none. As shown in the next two rows, additional services were associated with higher rates of college-going, although the increase in association with college-going from additional services was lower after the first 2 had been received.

The right side of the table shows similar results within the control group. Getting no career services again was associated with a much lower rate of college-going, and again the marginal increase in association with college-going from additional services after the first 2 was positive but much smaller. Of course, the caveats noted earlier must be borne in mind when interpreting these results: The number of services to be received was not assigned to sample members at random, and the unmeasured characteristics of those receiving different numbers of services were not the same. Because of possible selection bias, the direction of causation for interpreting this statistical association is therefore debatable. It cannot be said for sure whether using more services leads to more college-going or whether the college-bound tend to make sure to get more career services. However, the experimental evaluation results presented in Chapters 3 and 4 (especially the site impacts in Tables 3.11 and 4.4), showing that random assignment to greater availability of career services led to greater increases in college-going, makes it seem plausible that there is some causation from service receipt to college-going.

The next section of Table C.7 shows the association between number of career services and length of stay in college. The no-service experimentals stayed an average of 2.2 months, and the no-service controls stayed an average of 2.3 months. This implies that those who did attend stayed nearly 9 months, since the more-than-three-fourths who did not attend each stayed zero months. In general, these length-of-stay figures, both for experimentals and for controls, mirror the results already presented on college attendance: Those who went to college at all tended to stay for a full 9 months.

The final section of the table deals with attendance at the end of survey follow-up, in May 1989. Because those who went to college at all tended to stay until the end of the school year, the estimates in this section are not much different from the estimates in the first section. Thus, 51.8 percent of experimentals who received 6 or more career services attended college during that month, compared to 22.4 percent of no-service experimentals. The rates of attendance at the end of follow-up for those who received 1 or 2 services and for those who received 3, 4, or 5 services are between the extremes of 22.4 percent and 51.8 percent. Although college-going rates generally are higher for groups who received more services, the rate for the group with 3, 4, or 5 services is a bit below that of the group with 1 or 2, though the difference is not statistically significant. Controls show a similar pattern, without the anomaly just noted.

Table C.8 presents results on the relationship between college-going outcomes and mentoring. As in Table C.7, the 621 experimentals and 612 controls in the impact sample were analyzed separately. The first section of the table shows that, for experimentals, having a mentor is associated with a 55.5 percent rate of attendance at two- or four-year colleges, while not having a mentor is associated with a 47.1 percent rate of college-going.

The right side of the table again shows similar results within the control group. Not having had a mentor is associated with a lower rate of college-going, but, within the control group, both those who did and did not have mentors show lower rates of college-going than similarly served experimentals.

The next section of the table deals with length of stay and, as in the previous table, the pattern of length of stay reflects the pattern of college attendance. The final section presents results on attendance at the end of follow-up. Attrition seemed to be about 5 or 6 percentage points in each group, both among experimentals and among controls.

Table C.9 addresses the possibility that mentoring enhances the effectiveness of other career services. Within categories of numbers of the 11 services received, those who had mentors are distinguished from those who did not have mentors. Since mentoring was one of the 11 kinds of career service, it was impossible for any sample member to have had a mentor but to have received no career services. As in Table C.7, the no-service group of experimentals went to college at a rate of about 23 percent. Among experimentals who received one or two career services, 49.9 percent of those who had no mentor went to college, while 38.3 percent of those who had mentoring and one other service went to college. For those with more services in all, however, the story was very different. Among experimentals who had mentoring as one of 3, 4, or 5 services, 52.2 percent went to college; among experimentals who had 3, 4, or 5 services, but not mentoring, 45.8 percent went to college. A similar result obtained for those with 6 or more services. When mentoring was one of the

TABLE C.8

EDUCATIONAL OUTCOMES FOR EXPERIMENTALS AND CONTROLS, BY MENTORING STATUS

Outcome and Mentoring Status	Experimentals	p^a	Sample Size	Controls	p^a	Sample Size
Ever attended a 2- or 4-year college, June 1988-May 1989 (%)						
Had no mentor	47.1**	0.032	222	45.6**	0.039	336
Had a mentor	55.5		399	53.6		276
Number of months attended a 2- or 4-year college, June 1988-May 1989						
Had no mentor	3.9***	0.004	222	4.0	0.340	336
Had a mentor	5.0		399	4.4		276
Attended a 2- or 4-year college during May 1989 (%)						
Had no mentor	41.6**	0.024	222	40.9*	0.083	336
Had a mentor	50.6		399	47.6		276

SOURCES: MDRC calculations from Career Beginnings enrollment form and 1988 and 1989 survey data.

NOTES: Calculations for this table used self-reported data for all 621 experimentals and all 612 controls who responded to both the 1988 and 1989 surveys, including those with values of zero for outcomes and those who were assigned to Career Beginnings but did not participate.

Average experimental and control group outcomes reported here by mentoring status are adjusted means from separate linear analysis of covariance procedures controlling for 24 kinds of difference in characteristics before random assignment (see Ostle, 1975, p. 461; Cave, 1987). Because of rounding, there may be slight discrepancies in reported sums and differences of these adjusted means.

[a] F tests were applied to differences among average outcomes by mentoring status. The column labeled "p" is the statistical significance level of the differences among average outcomes: that is, p is the probability that average outcomes are different only because of random error. Statistical significance levels are indicated as *** = 1 percent or less; ** = 5 percent; * = 10 percent.

TABLE C.9

EDUCATIONAL OUTCOMES FOR EXPERIMENTALS AND CONTROLS, BY NUMBER OF SERVICES RECEIVED AND MENTORING STATUS

Outcome, Number of Services Received, and Mentoring Status	Experimentals	p^a	Sample Size	Controls	p^a	Sample Size
Ever attended a 2- or 4-year college, June 1988-May 1989 (%)						
No services and no mentor	23.1	0.306	16	27.7	0.147	27
1 or 2 services and no mentor	49.9		64	45.9		120
1 or 2 services and a mentor	38.3		26	51.0		25
3-5 services and no mentor	45.8		88	50.9		138
3-5 services and a mentor	52.2		113	49.8		112
6 or more services and no mentor	53.0		54	39.3		51
6 or more services and a mentor	58.7		260	57.3		139
Number of months attended a 2- or 4-year college, June 1988-May 1989						
No services and no mentor	2.2*	0.082	16	2.3	0.197	27
1 or 2 services and no mentor	4.4		64	3.9		120
1 or 2 services and a mentor	3.0		26	3.6		25
3-5 services and no mentor	3.8		88	4.6		138
3-5 services and a mentor	4.5		113	4.1		112
6 or more services and no mentor	4.1		54	3.7		51
6 or more services and a mentor	5.3		260	4.8		139
Attended a 2- or 4-year college during May 1989 (%)						
No services and no mentor	22.8*	0.087	16	27.7	0.280	27
1 or 2 services and no mentor	50.1		64	40.6		120
1 or 2 services and a mentor	34.9		26	47.7		25
3-5 services and no mentor	39.1		88	45.2		138
3-5 services and a mentor	46.5		113	43.9		112
6 or more services and no mentor	41.3		54	36.7		51
6 or more services and a mentor	53.8		260	50.8		139

SOURCES: MDRC calculations from Career Beginnings enrollment form and 1988 and 1989 survey data.

NOTES: This table includes services received from Career Beginnings and/or other sources. A participant could receive a maximum of 11 services, including mentoring (see Table 3.6).

Calculations for this table used self-reported data for all 621 experimentals and all 612 controls who responded to both the 1988 and 1989 surveys, including those with values of zero for outcomes and those who were assigned to Career Beginnings but did not participate.

Average experimental and control group outcomes reported here by service category and mentoring status are adjusted means from separate linear analysis of covariance procedures controlling for 24 kinds of difference in characteristics before random assignment (see Ostle, 1975, p. 461; Cave, 1987). Because of rounding, there may be slight discrepancies in reported sums and differences of these adjusted means.

[a] F tests were applied to the interaction between mentoring status and the distribution of number of services received. The column labeled "p" is the statistical significance level of the differences among average outcomes: that is, p is the probability that average outcomes are different only because of random error. Statistical significance levels are indicated as *** = 1 percent or less; ** = 5 percent; * = 10 percent.

services, experimentals went to college at a rate of 58.7 percent; when mentoring was not one of many services, 53.0 percent of experimentals went to college.

The right side of the table shows similar but stronger results among highly served controls. While 39.3 percent of controls who had 6 or more services, but not mentoring, went to college, 57.3 percent of controls who had mentoring as one of their many services went to college. Among controls who had 3, 4, or 5 services, there was little difference in college-going between those who had mentors and those who did not. Among controls who had only 1 or 2 services, when mentoring was one of them, they went to college at a rate of 51.0 percent; when mentoring was not one of them, the rate was 45.9 percent.

The next section of the table presents length-of-stay results. These generally agree with the results on college attendance and show similar patterns among experimentals and controls. The final section presents results for college attendance at the end of the follow-up, which, with one anomaly among experimentals, reflects the general pattern already discussed.

Bearing in mind the caveats, these results may be suggestive of a "synergistic" relationship between mentoring and other services. Among experimentals and among controls, mentoring was associated with higher rates of college-going when it was one of 6 or more career services. A mentor may provide "case management" to help a disadvantaged young person persevere through the long process of getting information about colleges, taking entrance exams, writing applications, and arranging financial aid. It is plausible that having someone to play such a role would lead to increased college attendance, and Tables C.8 and C.9 lend support to such views.

VII. Summary

The Career Beginnings evaluation answers the question of whether the ready availability of *more* career services leads to more college-going among disadvantaged in-school youths. However, another question for programs targeting disadvantaged college-bound youths is not whether Career Beginnings *in particular* raises their college attendance rates, but rather whether *in general* getting them career services leads to their going to college at higher rates. The reason the more general question cannot be answered directly by the Career Beginnings random assignment evaluation is that many members of the control group received similar career services, mainly from sources other than Career Beginnings.

Concentrating especially on the association between service receipt and college-going, this appendix has taken a step back from the evaluation to look not at experimental-control differences but rather at the much wider variation in service receipt and college-going *within* the control group and *within* the experimental group in order to explore this more general question. Rates of college-going have been presented for those who received no career services and compared to rates for those who got some help. Tests of a few simple hypotheses about service receipt and outcomes were conducted, showing that increased service receipt is associated with increased college-going, that individual services are associated quite differently with rate of college-going, and that mentoring may serve as a catalyst that increases the association of other services with college-going.

Because of the selection bias problem, these results are only suggestive. Since non-Career Beginnings services were not assigned to sample members at random, measured and/or unmeasured characteristics of those who got different services were not the same. The results presented in this chapter were adjusted for differences in measured characteristics between sample members in different service categories. However, the analysis done here could not adjust for differences in unmeasured characteristics. Because groups who got different services may have differed, and likely did differ, in unmeasured characteristics, it cannot be determined from this analysis whether using a service leads to college-going, or whether the college-bound tend to make sure to get the service, or whether someone else tends to make sure they get it. More rigorous examination of the associations discussed in this chapter is a subject for future research, in a context in which something closer to a low-service control group may be observed.

REFERENCES

Career Beginnings National Program Office. 1988. "Cross-Site Analysis of the Career Beginnings Program: MDRC Impact Study Sites in 1987-88." Draft Report. Waltham, Mass.: Career Beginnings National Program Office, Center for Human Resources, The Heller School, Brandeis University.

Carter, Deborah J., and Reginald Wilson. 1989. Minorities in Higher Education. Eighth Annual Status Report. Washington, D.C.: American Council on Education, Office of Minority Concerns.

Cave, George. 1987. "Sample Sizes for Social Experiments." In Proceedings of the Section on Survey Research Methods of the American Statistical Association.

Johnston, William, and Arnold Packer. 1987. Workforce 2000: American Work and Workers in the 21st Century. Indianapolis: Hudson Institute.

Lewin/ICF. 1990. Four Years of Investment, A Lifetime of Returns: College as an Investment for Black Youth. Draft Final Report. New York: The Commonwealth Fund.

Mincer, Jacob. 1989. "Human Capital and the Labor Market: A Review of Current Research." Educational Researcher 18 (4).

Ostle, Bernard. 1975. Statistics in Research, 3rd ed. Ames: Iowa State University Press.

Smith, James P., and Finis R. Welch. 1989. "Black Economic Progress After Myrdal." Journal of Economic Literature 27.

U.S. Bureau of the Census. 1981. General Social and Economic Characteristics: 1980. Washington, D.C.: U.S. Government Printing Office.

U.S. Bureau of the Census. 1987. Statistical Abstract of the United States: 1988. Washington, D.C.: U.S. Government Printing Office.

SELECTED MDRC PUBLICATIONS ON YOUTH PROJECTS

MONOGRAPHS

Gueron, Judith M. Lessons from a Job Guarantee: The Youth Incentive Entitlement Pilot Projects. 1984.

Polit, Denise; Quint, Janet; and Riccio, James. The Challenge of Serving Teenage Mothers: Lessons from Project Redirection. 1988.

REPORTS

JOBSTART Demonstration

Auspos, Patricia; Cave, George; Doolittle, Fred; and Hoerz, Gregory. Implementing JOBSTART: A Demonstration for School Dropouts in the JTPA System. 1989.

Auspos, Patricia; with Price, Marilyn. Launching JOBSTART: A Demonstration for Dropouts in the JTPA System. 1987.

Project Redirection

Branch, Alvia; and Quint, Janet. Project Redirection: Interim Report on Program Implementation. 1981.

Branch, Alvia; Riccio, James; and Quint, Janet. Building Self-Sufficiency in Pregnant and Parenting Teens: The Implementation of Project Redirection. 1984.

Levy, Sydelle Brooks; with Grinker, William J. Choices and Life Circumstances: An Ethnographic Study of Project Redirection Teens. 1983.

Polit, Denise. Needs and Characteristics of Pregnant and Parenting Teens: The Baseline Report for Project Redirection. 1982.

Polit, Denise; Kahn, Janet; and Stevens, David. Final Impacts from Project Redirection: A Program for Pregnant and Parenting Teens. 1985.

Polit, Denise; Tannen, Michael; and Kahn, Janet. School, Work and Family Planning: Interim Impacts in Project Redirection. 1983.

Riccio, James; with Council, Delia. Strengthening Services for Teen Mothers: The Teen Parent Collaboration. 1985.

New Chance Demonstration

Kelly, Jodie Sue; and Elsman, Max, both of Cygnet Associates. How To Recruit Young AFDC Mothers to New Chance. 1989.

Manpower Demonstration Research Corporation. New Chance: Operating Guidelines for the Sites in the Demonstration. 1989.

Quint, Janet; and Guy, Cynthia. New Chance: Lessons from the Pilot Phase. 1989.

Youth Incentive Entitlement Pilot Projects (YIEPP)

Ball, Joseph; Gerould, David; and Burstein, Paul. The Quality of Work in the Youth Entitlement Demonstration. 1980.

Ball, Joseph; and Wolfhagen, Carl. The Participation of Private Businesses as Work Sponsors in the Youth Entitlement Demonstration. 1981.

Diaz, William; Ball, Joseph; and Wolfhagen, Carl. Linking School and Work for Disadvantaged Youths – The YIEPP Demonstration: Final Implementation Report. 1982.

Farkas, George; Olsen, Randall; Stromsdorfer, Ernst W.; Sharpe, Linda C.; Skidmore, Felicity; Smith, D. Alton; and Merrill, Sally. Post-Program Impacts of the Youth Incentive Entitlement Pilot Projects. 1984.

Farkas, George; Smith, D. Alton; Stromsdorfer, Ernst W.; Trask, Gail; and Jerrett, Robert III. Impacts from the Youth Incentive Entitlement Pilot Projects: Participation, Work and Schooling Over the Full Program Period. 1982.

Community Service Projects

Guy, Cynthia A.; Bailis, Lawrence N.; Palasits, David R.; and Sherwood, Kay E. Community Service Projects: Final Report on a New York State Pregnancy Initiative. 1988.

Guy, Cynthia, A. Community Service Projects: A New York State Adolescent Pregnancy Initiative. 1986.

Manpower Demonstration
Research Corporation

Three Park Avenue
New York, New York 10016
(212) 532-3200

1669 Bush Street
San Francisco, California 94109
(415) 441-7607

MDRC